



AAPG

DISCOVER

The Asia Pacific Region Newsletter

NOTE FROM PRESIDENT OF AAPG ASIA PACIFIC REGION

Peter Baillie

The AAPG hosts two main conferences each year, the Annual Conference & Exhibition (ACE) and the International Conference & Exhibition (ICE).

The larger of the two, ACE is held in North America, usually in the United States, in April or May. The event attracts an average of 5,000 to 8,000 delegates, as well as non-member professionals and students and industry-related exhibitors. As an international event, ICE is held outside the United States and rotates through the AAPG Regions (Canada, South America, Europe, Africa, Middle East and Asia Pacific).

In the present century, ICE has been held in the Asia Pacific Region at Bali (2001 co-hosted with the Indonesia Petroleum Association); Perth (2006 co-hosted with the Petroleum Exploration Society of Australia); and Singapore (2012 co-hosted with the Southeast Asia Exploration Society).

The ICE events held in the Asia Pacific Region were among the most successful, due in no small part to the organizing committees that worked long and hard many for several years before the event took place.

Now, it's crunch time again.

On rotation, the next Asia Pacific ICE is likely to be held some time between 2015 and 2017.

With very best wishes for 2013 and the Chinese Year of the Snake.



Peter Baillie
President of AAPG - Asia Pacific Region

INSIDE THIS ISSUE

President's Note.....	1
Regional News Update	2
Exploration Focus	3
2013 GTW Schedule.....	4
Research Discovery, Development...	5
Meet the AAPG – Asia Pacific Young Professional	7
Student News and Activities.....	9

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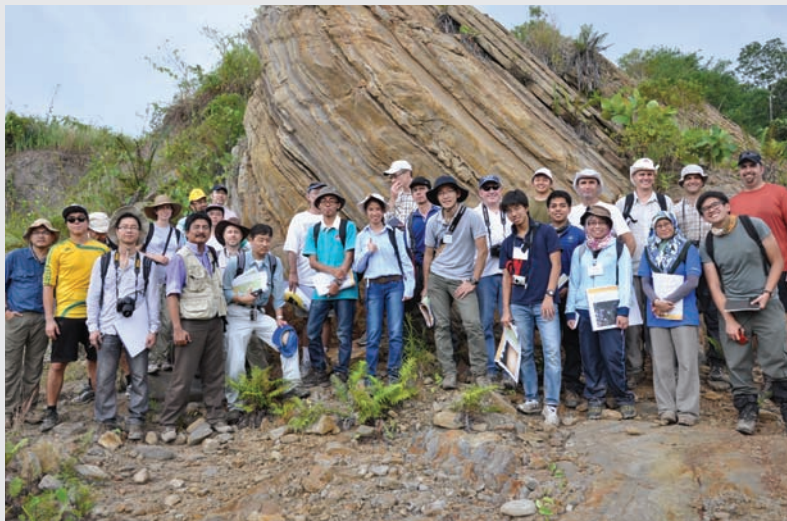


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REGIONAL NEWS UPDATE

FIRST-EVER AAPG GTW IN BRUNEI A NOTABLE SUCCESS

The AAPG GTW in Brunei was successfully completed on 14 March 2013. Top Keynote Speakers Henry Posamentier, Brad Prather and Emiliano Mutti headed up a roster of distinguished speakers who presented papers on "Asia Pacific Deepwater Plays: Exploration & Production." This event was strongly supported by PetroleumBRUNEI with an opening address by Tuan Haji Azhar Bin Haji Yahya, the Permanent Secretary, (Upstream) Energy Department, Prime Minister's Office. GTW Brunei was co-convened by Pg Dr Abdul Razak Pg Hj Damit, PetroleumBRUNEI and Herman Darman of Shell, The Hague. This event welcomed 110 delegates and sponsors that included Brunei Shell, TOTAL, Murphy, PEXCO and Shell Deepwater Borneo.



VOLUNTEERS NEEDED

The AAPG Asia Pacific Region seeks volunteers to join our team in producing more geosciences events for our members. We also welcome suggestions for convenors to helm our Geosciences Technology Workshops (GTWs). For more details, contact Adrienne at apereira@aapg.org.

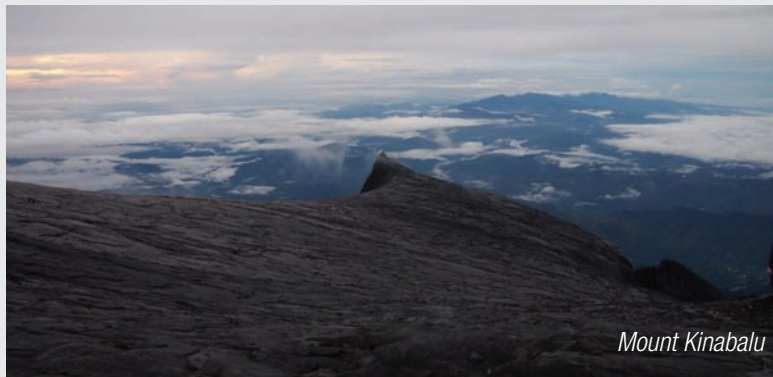
EXPLORATION FOCUS

GEOLOGICAL FIELD TRIP TO MOUNT KINABALU AND VOLUNTARY PROJECT AT KOTA KINABALU WETLANDS CENTRE

On 3-6 July 2012, 21 members of AAPG Universiti Teknologi PETRONAS Student Chapter, accompanied by Club Advisor AP Askury Abd Kadir and Mr. Jasmi Ab Talib, took part in a geological field trip to Mount Kinabalu and a volunteer project at Kota Kinabalu Wetlands Centre. Mount Kinabalu is known to be the highest mountain in South East Asia, with an elevation of 4095.2 meters above sea level.

We started our journey by departing to LCCT airport, where we boarded a plane and landed at Kota Kinabalu International Airport. We were then transported to Kinabalu Park Headquarters for registration and checked in at Mesilau Nature Resort. It is mandatory for hikers to report themselves here before hiking Mount Kinabalu solely for safety purposes. We spent our night there to replenish our energy for a long journey of hiking the next day.

At 9.00 a.m. the next morning, we started our journey with an 8 km hike to Laban Rata, the resting resort mid-way to the summit via Mesilau Trail. The journey was fantastic because we experienced many different types



Mount Kinabalu

of lithologies, such as metasedimentary mudstones, hornblende granite, porphyritic granite and granodiorite along the trail, and the scenery was exceptionally beautiful.

After a few hours of rest at Laban Rata, we resumed our remaining 2.7 km trip to the summit, where 20 of us succeeded in stepping foot on the highest peak in Southeast Asia. One of the geological features observed on the summit is the effect of glacial striation, which is believed to have occurred during glaciations roughly 100,000 years ago. The glaciations scoured the pre-existing sedimentary rock and exposed the massive and intrusive pluton beneath. That afternoon, we climbed down to the foot of the mountain—a 6 km hike—via the Timpohon Trail. The moment we stepped on the highest point (Low's Peak) was simply extraordinary and unforgettable.

The next day, all participants and lecturers visited Kota Kinabalu Wetlands Centre to observe the biological diversity at the mangrove swamps. The Kota Kinabalu Wetlands Centre is located at the heart of Kota Kinabalu Town and is threatened by the town's development and urbanization. I believe all participants learned the importance of respect for nature and were inspired to lend a helping hand to conserve and protect Mother Nature.

The Mount Kinabalu Geological Field Trip and Voluntary Project at Kota Kinabalu Wetlands Centre received positive feedback from the participants. In addition to the knowledge and memories gained during this trip, the bonding and interaction among us increased through the journey's hardships when we pulled through together. We hope that the success of this adventure and the spirit of togetherness can be continued in other upcoming geological field expeditions.



Some participants on the highest peak of Mount Kinabalu

AAPG GEOSCIENCES TECHNOLOGY WORKSHOPS



INFORM DISCUSS LEARN SHARE: THE AAPG GTW EXPERIENCE



AAPG GEOSCIENCES TECHNOLOGY WORKSHOPS

KUALA LUMPUR, 04-05 JUNE 2013 – A JOINT AAPG / EAGE GTW

PROFITS & PITFALLS OF SHALLOW SEISMIC ANOMALIES

<http://www.aapg.org/gtw/kualalumpur2013/index.cfm>

CHIANG MAI, 07-09 NOVEMBER 2013 RIFT BASINS

Look for more details at: www.aapg.org/gtw

Who Should Attend? Exploration and development geologists, geophysicists, log analysts, and managers involved in exploration and production activities. The workshop will benefit everyone, from experts to those unfamiliar with the themes.

Interested in making a presentation? For consideration, send a 30-line summary and CV with short paragraphs to Adrienne Pereira apereira@aapg.org in the AAPG Asia Pacific Office.

THE PALAEOGEOGRAPHIC FRAMEWORK FOR SOUTHEAST ASIA: A CGG STUDY

Duncan Witts (duncan.witts@cgg.com)
Catherine Holley (catherine.holley@cgg.com)
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Southeast Asia is a vast region with significant remaining potential for exploration both onshore and offshore. Realising this potential, however, is hampered by intense geological complexity and highly variable data availability and quality. Despite more than a century of exploration of Southeast Asia's natural resources, highlighted by some significant but often isolated discoveries, a regionally consistent geological dataset is currently lacking for this part of the world – without which the understanding of the tectonic and palaeogeographic evolution will always be at a disadvantage. NPA Satellite Mapping and Robertson – both with a long history of working in the region – are tackling this problem by integrating a diverse but complementary suite of data that will provide a unified view of Southeast Asia's tectonic and palaeogeographic evolution.

NPA Satellite Mapping is the recognised leader in the field of satellite geological

SPONSORSHIP OPPORTUNITIES

Sponsorship opportunities are available to promote your corporate image. Request information from Adrienne Pereira at apereira@aapg.org.

AAPG GTWs do not publish manuscripts and do not allow recordings of proceedings. This is to encourage free dissemination of information and more open discussions.



From left to right: Co-Convenor Herman Darman with Keynote Speaker Professor Emiliano Mutti of the University of Parma, Italy. Guest of Honour Tuan Haji Azhar bin Haji Yahya, Permanent Secretary Upstream (third from left) being greeted by Pg Dr Abdul Razak Pg Hj Damit, PetroleumBRUNEI (Extreme Left) and Herman Darman, Shell The Hague (second from left). AAPG Asia Pacific President Peter Baillie (fourth from left) was also there to welcome Tuan Haji Azhar and his colleague (extreme right) (upper). The networking session during GTW (lower). Our very supportive sponsors – thank you to all of you.

mapping, producing detailed structural interpretations for many parts of Southeast Asia. Robertson has developed a suite of innovative drainage and hinterland analyses that provide the basis for building drainage and landscape evolution models to predict sediment flux, delivery pathways, and aid in the prediction of reservoir distribution and new play opportunities.

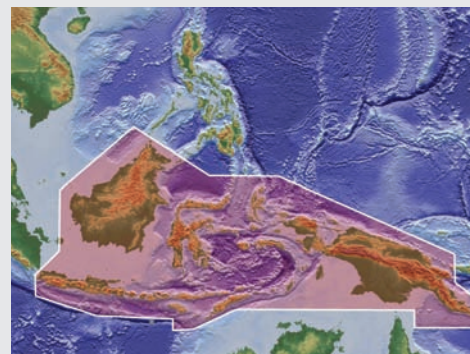
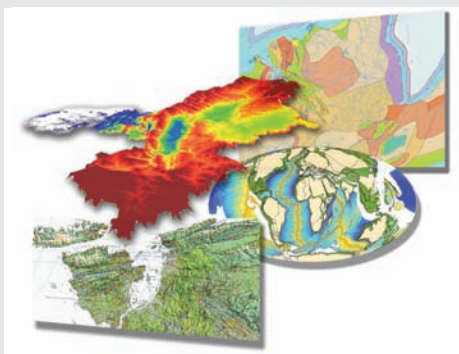
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A consistent regional geological and structural interpretation, based on high-quality satellite data, will provide the necessary framework to define key structural elements and plate fragments and to develop a detailed dynamic plate model. The model will be viewed in the context of current regional understanding, with alternative solutions tested by nesting them within Robertson's global plate tectonic framework (Plate Wizard™). This will provide additional constraints and value. An understanding of this dynamic evolution is a prerequisite for generating the meaningful palaeogeographic reconstructions that can serve as a means of evaluating play elements, and can directly assist in the prediction of source, reservoir, and seal distribution. Professor Robert Hall, Royal Holloway University London, who is highly respected for his work in Southeast Asia, will be working on the project during key stages of the model's development and will provide external QC on the palaeogeographic interpretations that will capture key events in Southeast Asia's tectonic history relevant to hydrocarbon system development.

The project components will include:

- Regionally consistent 1:200,000 scale geological map coverage, with all mapped elements fully attributed. Importantly, the attributions will include motion history/timing of main structures and sedimentary basins
- Fully interpreted blue line and digitally extracted drainage network maps, based on DCW high-resolution coverage, in addition to drainage characteristics and anomalies maps with associated descriptive statistics
- Plate reconstruction, including revised plate (and plate fragment) definitions



The Area of interest (AOI) of the project

EXPLORATION AND PRODUCTION OVERVIEW OF VIETNAM

**Manuel González-Quijano (mgonzalezquijanoa@repsol.com),
Laura Yague and Juan Álvarez, Repsol, Madrid, Spain**

Among the Asia-Pacific countries, Vietnam ranks fourth in terms of oil reserves and seventh in terms of gas reserves (Figure 1). First oil production started in 1986 when the Bach Ho Field (900 MMBO and 1 TCFG recoverable reserves) was brought onstream. The country's liquids production peaked in 2004 with more than 400,000 BOPD, but has now decreased to 317,000 BOPD. Currently, just about half of the daily production flows from Bach Ho Field, which peaked at 210,000 BOPD in 2001 but is now in decline. Further new developments will generate a second peak around 355,000 BOPD in 2014, but the lack of new big discoveries will make it difficult to offset the decline of Bach Ho. Gas production started in 1995 and has rapidly increased since then. Current production is 700 MMCFD and 1100 MMCFD are expected to flow by 2017.

The first refinery in Vietnam (Dung Quat) began operations in 2009 with a capacity of 130,000 b/d (Figure 2). Before this time, all the produced oil was exported, and refined products were imported. The refinery capacity currently accounts for only 30% of internal consumption and total oil consumption exceeds production. Two more refineries, Nghi Son and Long Son, are expected to be completed in the next

few years, adding a combined capacity of 340,000 b/d. No offshore oil pipelines have been constructed, and the field developments have traditionally used FPSOs. In terms of gas infrastructures, three pipelines (Figure 2) were constructed to transport gas from the Cuu Long Basin (Bach Ho Pipeline), Nam Con Son Basin (Nam Con Son Pipeline) and the shares of the PM3 Commercial Agreement Area between Vietnam-Malaysia within the Malay Basin (South West Pipeline). Moreover, a second Nam Con Son Pipeline and a second South West Pipeline (Can Tho) are currently being constructed to develop gas fields in the Nam Con Son and Malay Basins, respectively. No LNG plants have been constructed but are in the planning stage. The gas production equals the consumption, but rapid increase in demand has led the government to think about importing LNG.

History of petroleum exploration in Vietnam

During the 1960s, the first geophysical surveys were shot onshore in the Hanoi Trough leading to the Tien Hai gas/ condensate discovery in 1975. However, no further significant exploration followed onshore as the main focus shifted to the offshore basins. Exxon, Mobil and Pecten shot the first offshore seismic surveys in 1973 and discovered the Dua and Bach Ho Fields in 1974 and 1975, respectively. In 1975, following the fall of Saigon, all the PSCs were cancelled and the United States initiated an embargo that would last until 1994. In 1976,

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Vietnam was re-unified, and in 1977, the government began to encourage foreign companies to explore, awarding several exploration concessions over the following few years. However, all of these blocks were relinquished in 1982 and 1983. In 1981, Vietnam and USSR had formed the joint venture Vietsovpetro to explore and develop several offshore areas. In fact, Vietsovpetro was the only company drilling in Vietnam until the return of foreign operators in 1988. During these years, Vietsovpetro discovered the Rong Field (1985) and appraised the Bach Ho Field. In 1987, a new foreign investment law was announced, and more acreage was offered to foreign companies. The subsequent awards led to the Lan Tay, Lan Do and Moc Tinh gas discoveries in 1993 and Rang Dong and Ruby oil discoveries in 1994. Since 1999, there has been a fair and continuous amount of awarded PSCs, mainly acquired through the three bid (or licensing) rounds. The first licensing round was launched in 2004 and nine blocks were offered in the Phu Khanh Basin (Figure 2) resulting in four awards.

The second round was opened in 2007 with seven blocks offered in the Song Hong Basin and three blocks awarded. The third bid round was announced in 2011 with nine blocks offered in Nam Con Son, Khorat Plateau and Malay Basins resulting in three awards. Despite the rounds, direct negotiation has traditionally been a very common way for obtaining acreage. Significant post-1999 discoveries include Su Tu Den, Su Tu Vang and Su Tu Trang.

Basins summary and remaining potential

Exploration activities have mainly focused in six offshore basins: Cuu Long, Nam Con Son, Malay, Song Hong, Phu Khanh and Tu Chinh/Vung May. The most prolific basin is the oil-prone Cuu Long (Fig. 2), which accounts for most of the resources discovered in the country including the Bach Ho, Rong, Ruby, Su Tu

Den, Rang Don, with 2P recoverable reserves in excess of 4000 MMBO. The Cuu Long is considered a mature exploration area in that all the acreage is currently taken and it is expected that the remaining potential is represented by small-size accumulations.

The Nam Con Son Basin is located to the southeast of the Cuu Long Basin and separated by a structural high named the Con Son Swell. The Nam Con Son Basin is mainly gas prone but might also have significant oil potential (418 MMBO and 8 TCFG, IHS). It is considered relatively under-explored although not much acreage is currently available. The Lan Tay/Lan Do discoveries (2.4 TCFG) is the most important gas project developed in the basin, whereas Dai Hung (69 MMBO) and Chim Sao/Dua (60 MMBO) are the most important oil fields currently producing. Other significant fields that will soon be brought onstream upon completion of the Nam Con Son 2 Pipeline are Hai Thach/Moc Tinh (1.6 TCFG and 64 MMBO).



Figure 2. Vietnam map showing current exploration licenses, pipelines, refineries, fields and basins. (Source: NOAA, IHS and WoodMackenzie.)

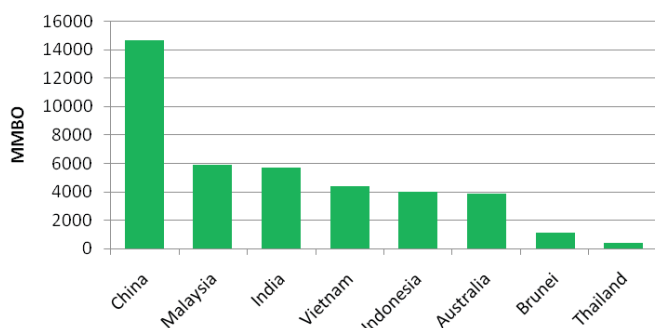
Vietnam offshore territory extends to the west to a small area of the Malay Basin in which the Malay-Vietnam Cooperation Area Agreement (CAA) was established to develop some fields that are currently producing. In addition, the Can Tho Pipeline is currently being built to develop Chevron's 3.5 TCF gas fields in the Malay Basin. Exploration in the Song Hong Basin started on its onshore extension (the Hanoi Trough) leading to the first small commercial discovery Tien Hai Field. Other gas discoveries have been made in the offshore part, but large amounts of CO₂ have usually prevented commercialization. This is the case of 115-A-1X well located on the Tri Ton Horst which may contain 30 TCFG with 90% CO₂. However, exploration is still quite active, and most of the shallow water acreage is currently taken. Discovered resources are 82 MMBO, 13 TCFG plus 105 MMBC (IHS).

The frontier Phu Khan Basin is situated in between Song Hong and Cuu Long Basins. To date, this basin is under-explored with only three wells drilled, leading to two non-commercial discoveries. Again, high CO₂ content related to volcanics appear to limit the prospectivity of the basin. Abundant acreage is still available including some shallow water blocks.

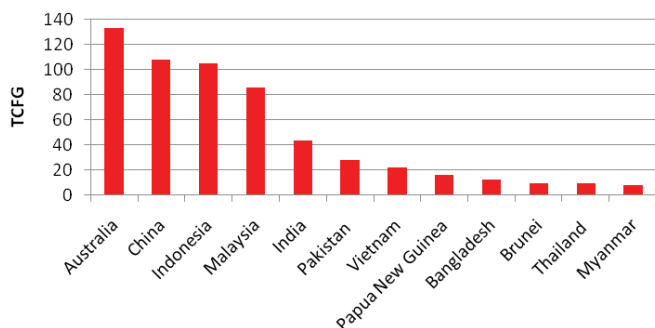
Finally, the Tu Chinh/Vung May Basin lies just to the east of Nam Con Son. It is the least explored basin in Vietnam and could be an emerging petroleum province in Southeast Asia. It lies within the disputed areas between China, Vietnam and other neighboring countries. Actually, its whole extension is claimed by China and this has caused serious political issues and overlapping territorial claims. In June 2012, China launched a bid round in which nine blocks have been offered in disputed waters, and several international oil companies own exploration rights in areas awarded by Vietnam and now offered by China.

Sources: BP Statistical Review of World Energy 2012, C&C Reservoir, IHS, International Energy Agency (IEA), Oil & Gas Journal (OGJ), Wood Mackenzie

Proved Oil Reserves



Proved Gas Reserves



MEET THE AAPG ASIA PACIFIC YOUNG PROFESSIONALS

Meet Hock Kim Ong

Hock Kim Ong is a Young Professional member in AAPG's Asia Pacific Region who currently works as a production seismologist for Shell. During his free time, Hock Kim also volunteered to serve as this year's Imperial Barrel Award (IBA) coordinator for the Asia Pacific Region. AAPG's Imperial Barrel Award Program is an annual prospective basin evaluation competition for geoscience graduate students from universities around the world, where university teams compete to win scholarship funds for their geoscience department and the international recognition that comes from competing in or winning the competition.

Hock Kim's Profile

Education: Graduated in 2008 with a BSc (Hons) in Geology from University of Malaya, Kuala Lumpur, Malaysia.

How did you get your current job? Shell's oil and gas operations in Malaysia were introduced to me through various AAPG student chapter events sponsored by Shell. I was impressed by their comprehensive graduate training program and applied for a position promptly after my graduation in 2008. I worked as a QI Geophysicist at DownUnder GeoSolutions in Perth until I was selected to attend Shell Recruitment Day. I was fortunate enough to be offered the position of seismologist and have held this role since April 2010.

What are your main responsibilities in the company? As a production seismologist, I deal primarily with seismic and well data. From this, I build robust structural models by combining both geological and geophysical techniques, and use them to quantify subsurface uncertainties, predict geohazards, plan well locations, etc.

As an employee of Shell, I am required to understand and practice safety in all aspects of my work. This includes performing risk assessments for projects and documenting potential hazards in the development phase of a prospect.

How can Young Professionals play a vital role in AAPG? I am convinced that AAPG YP goes a long way in helping young geoscientists build a solid support system as they progress into the industry. I am fortunate to be associated with many talented individuals within this network. We are constantly exchanging ideas, sharing knowledge and working towards a common goal to groom each other. This companionship is something that is increasingly difficult to come across in the workplace.

With the development of cutting-edge technologies in the industry, this is a tremendously exciting time to be a budding geoscientist. Hence, I strongly urge all young professionals to join us in this truly exhilarating journey.



Do you have any advice or tips for the geoscience students out there who will be graduating and looking for a job?

Job hunting after graduation is an exciting period of our lives, especially if we have a strategy in place. I believe that in the first few years of our career, we should seek to learn more than to earn. Hence, we shouldn't worry too much if our job isn't the best paying one in town, as long as we are in a sustainable learning environment. In my opinion, money will come naturally as we gain more experience. As for interviews, potential employers usually look for graduates who can add value to the company, so I suggest that you do some homework before the meeting and clearly demonstrate how you can help the company reach its objectives. Let them know the skills you acquired in degree trainings and your leadership capabilities (e.g. involvements with an AAPG Student Chapter program). We are all fond of people who are enthusiastic about their job, so why not also show positive energy in your speech and actions. Give them reasons to hire you.

Now that you have graduated, what's next? Now you need AAPG more than ever and vice versa. AAPG is much more than a stepping-stone to your first job. It offers a lifetime venue for developing networks and business contacts, finding people to mentor and advise, and stay in touch with people you met while a student. Right now, the YP program in the Asia Pacific is building up. Our graduate student members will move on to the industry as Young Professionals, and we look forward to welcoming all of them onboard. We also welcome ideas for programs to keep our YPs engaged. Those interested in joining us can contact Reetu at reeturagini@gmail.com for details.

STUDENT NEWS AND ACTIVITIES

AAPG Imperial Barrel Award (IBA) 2013 Recap

AAPG recently held the 2013 Imperial Barrel Award (IBA), an annual program focusing on prospective basin evaluation for geoscience graduate students around the world.

University teams compete to win scholarship funds for their geoscience department and the international recognition that comes from competing in or winning the competition. The IBA program contributes to AAPG's mission of promoting petroleum geoscience training and advancing the careers of geoscience students.

In this global competition, university teams analyze a dataset (geology, geophysics, land, production infrastructure, and other relevant materials) in the eight weeks prior to their local competition. Each team delivers its results in a 25-minute presentation to a panel of industry experts. Students have the chance to use state-of-the-art technology on a real dataset, receive feedback from an industry panel, impress potential employers in the audience, and win cash awards for their school. The judges will select the winning team on the basis of the technical quality, clarity and originality of presentation.

In the Asia Pacific region, we are honored to have eight highly respectable institutes joining us across four countries:

1. Indian Institute of Technology, Bombay, India
2. Indian School of Mines, Dhanbad, India
3. Institut Teknologi Bandung (ITB), Indonesia
4. Universitas Gadjah Mada, Indonesia
5. University of Indonesia, Indonesia
6. China University of Petroleum, China
7. Peking University, China
8. University of Karachi, Pakistan

Our regional competition began early this year with the dataset distribution. After eight weeks of rigorous studies, the teams gathered 4-6 March 2013 to showcase their work to a panel of experienced judges representing the oil and gas and education industries. This year we had five distinguished individuals making up the judging panel: Ian Dunderdale (Head), Nick Comrie-Smith, Mario Aurelio, Jeff Aldrich and Ralph Kugler. The judges were delighted with the high quality studies, clearly reflecting the students' efforts in this competition.

After the three-days virtual semifinal and after some careful considerations, Institut Teknologi Bandung (ITB), Indonesia, was selected as the best team overall, closely followed by Universitas Gadjah Mada (UGM), Indonesia, as runner-up. ITB will now represent the Asia Pacific region for the finals at Pittsburgh, Pennsylvania, in the United States starting 17 May 2013. Last year, our regional representative, Khon Kaen University, Thailand, made us proud by finishing second at the finals in Long Beach. Let's hope ITB can go all the way this time to bring the award back to our region.

We congratulate all the participants again for their commendable efforts. We also hope that from this competition, students gained valuable insights to the petroleum geoscience industry.

Ong Hock Kim
IBA Coordinator Asia Pacific Region



Institut Teknologi Bandung (ITB), Indonesia team for IBA 2013.

STUDENT NEWS AND ACTIVITIES

AAPG Student Chapter Important Dates

L. Austin Weeks Undergraduate Grants
Deadline - December 16, 2013.

The application is now online.

at <http://foundation.aapg.org/weeksgrant.cfm>

New this year is an AAPG Foundation committee that will select a maximum of 67 students and AAPG Student Chapters to receive a grant. Each selected chapter and the student will receive \$500. Your Chapter will nominate one student to apply online. Please contact your faculty advisor to be nominated.

INTERESTED IN HAVING A STUDENT CHAPTER IN YOUR UNIVERSITY?

AAPG Asia Pacific welcomes more Student Chapters. Information can be found at <http://students.aapg.org/index.cfm> or write to Adrienne Pereira at apereira@aaapg.org.

Special Coverage: Through Petroleum System with Seminar Poster and Field Trip (TRAPSPOT) 2012

During November and December 2012, the University of Padjadjaran Student Chapter of AAPG held a multitude of events, including a seminar, poster contest and field trip under the name of TRAPSPOT (Through Petroleum System with Seminar Poster and Field Trip) TRAPSPOT was attended by various academic institutions in Indonesia, such as University of Padjadjaran, Akademi Minyak dan Gas (Akamigas) Balongan, Institut Teknologi Medan, Universitas Diponogoro and Institut Teknologi Bandung.

Seminar and Talk Show

The Seminar was held on 23 November 2012 with "State and Condition of Hydrocarbons Exploration in Eastern Indonesia" as the main topic for the first day where it was divided into two sessions:

1. "Geology of Papua Tangguh Field Discovery" by Leonardus Tjahjadi, Asep Sulaiman and Rizwan Fitriannur from BP. This session included the regional geology and tectonic setting of Papua, the history of the Tangguh field, and BP's exploration process.
2. "Focus on Hydrocarbon Play Concept: The West Papua Tangguh Field Gas Discovery" by Stephen Scott. This session described the exploration conditions of western Papua.

On the second day, a talk show with the theme "The University's Role in Enhancing Indonesia's Oil and Gas Reserves" was held with Edy Sunardy as the moderator. The speaker was Indonesia's Energy Minister Rizal Fajar and Dadang Rukmana from SKSP MIGAS.

Today, universities and the oil and gas industry are in a relationship as strong as ever. Universities encourage students to learn

the theory behind the oil and gas industry. When they graduate and enter the industry, their knowledge is applied and put to good use. From the 1900s to 2000, Indonesia produced more oil than gas. However, gas production has now overtaken oil as oil production continues to decrease. Therefore, it will be our challenge as the new generation of geoscientists to find more reserves as well as optimize existing reserves.

According to BP MIGAS data, the amount of oil reserves in Indonesia is estimated to be around 69 billion barrels. However, the amount of recoverable oil reserves is 26 billion barrels and non-recoverable are 13 billion barrels. From that 26 billion barrels, it has been produced 22.3 billion barrels and counting. Therefore, another option for this energy source is needed. This matter can be solved by increasing gas production.

During the talk show, Dadang Rukmana suggested that the students not only study geology exploration but also geology production. This is because most of the oil and gas fields in Indonesia are mature, which means that the field has reached and surpassed its maximum production rate of hydrocarbons. About 74% of the oil fields in Indonesia are mature. Therefore, it will be quite a challenge in the future to maintain production level from these mature fields. Rukmana also highlighted that exploration geologists still have a bright future as there are more than 233 areas in Indonesia that are either under-discovered

or have not yet been explored. Overall, the talk show was a success and the participants demonstrated enthusiasm by posing a lot of questions to Rizal Fajar and Dadang Rukmana.



The participants after the seminar finished.

Joint Field Trip with Hasanuddin University SC of AAPG

From 9-12 December 2012, the University of Padjadjaran Student Chapter of AAPG collaborated with Hasanuddin University Student Chapter to conduct a joint field trip. The focus of this trip was "Cenozoic Carbonates of The Tonasa Formation, South Sulawesi." This field trip is a part of TRAPSPOT. Thirteen students from University of Padjadjaran and 12 students from Hasanuddin University participated. The field trip was guided by Kaharudin from Hasanuddin University, who described the melange zone of Bantimala and Tonasa formations, which contain the Cenozoic

carbonate. The Bantimala complex was a product of subduction during the Cretaceous. The Tonasa formation has karst morphology and many holes that indicate dissolution. It is also made of bioherm and biostrome. Based on the fossil analysis, it is highly probable that the Tonasa formation formed during the Upper Eocene.

AAPG – Asia Pacific Region Affiliated Societies

- Association of Petroleum Geologists India
- Association of Petroleum Geologists Kazakhstan
- Balochistan Geoscientists Association
- Geological Society of India
- Geological Society of Malaysia
- Geological Society of Thailand
- Japanese Association for Petroleum Technology
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