ISSN 0126 - 5539
PP2509/07/2011(028111)

PERSATUAN GEOLOGI MALAYSIA

WARTA GEOLOGI

NEWSLETTER of the GEOLOGICAL SOCIETY OF MALAYSIA

Jilid 36
No. 2

APRIL–JUNE
2010

Volume 36
No. 2

PERSATUAN GEOLOGI MALAYSIA
GEOLOGICAL SOCIETY OF MALAYSIA

MAJLIS (Council) 2010/2011

PRESIDEN (President) :	Joy Jacqueline Pereira
NAIB PRESIDEN (Vice President) :	Mazlan Madon
SETIAUSAHA (Secretary) :	Mohd Rozi Umor
PENOLONG SETIAUSAHA (Assistant Secretary) :	Ling Nan Ley
BENDAHARI (Treasurer) :	Ahmad Nizam Hasan
PENYUNTING (Editor) :	Lau Yin Leong
PRESIDEN YANG DAHULU (Immediate Past President):	Yunus Abdul Razak
AHLI-AHLI MAJLIS (Councillors) :	Abd. Rasid Jaapar
	Anil Nair
	Gan Lay Chin
	Ng Tham Fatt
	Nur Iskandar Taib
	Nicholas Jacobs
	Samsudin Hj Taib
	Tan Boon Kong

JAWATANKUASA PENYUNTING (Editorial Committee)

Lau Yin Leong (Chairman)
Anna Lee
Ng Tham Fatt
Sharifah Nur Eli Diyana Syed Ismail

The Society was founded in 1967 with the aim of promoting the advancement of earth science particularly in Malaysia and the Southeast Asian region. The Society has a membership of about 600 earth scientists interested in Malaysian and other Southeast Asian region. The membership is worldwide in distribution.

Warta Geologi (Newsletter of the Geological Society of Malaysia) is published bimonthly by the Society. Warta Geologi covers short geological communications and original research, as well as reports on activities and news about the Society. It is distributed free-of-charge to members of the Society. Further information can be obtained from:

GEOLOGICAL SOCIETY OF MALAYSIA
c/o Department of Geology,
University of Malaya
50603 Kuala Lumpur,
MALAYSIA
Tel: 603-7957 7036 Fax: 603-7956 3900
E-mail: geologicalsociety@gmail.com
URL: www.gsm.org.my

Cover photo by Joanes bin Muda, JMG Sabah (first prize winner of GSM photo competition 2009)
Stepped Shore Platform — Steeply dipping sandstone/mudstone beds (Tajau member of Kudat Fm.) eroded by waves, Kudat, Sabah

CATATAN GEOLOGI
GEOLOGICAL NOTES

Thermal conductivity values of some sandstones and shales from the Belait Formation

Masnan, M.S.[1], Padmanabhan, E.[3], Mokhtar, M.A.[1], Rajamohan, G.[2] & Prasanna, V.[1]

[1] Department of Science and Mathematics, Curtin University of Tehcnology, Miri, Sarawak.
[2] Department of Mechanical Engineering, Curtin University of Tehcnology, Miri, Sarawak.
[3] *Current address*: Petroleum and Geosciences Department, Universiti Teknologi Petronas, Bandar Seri Iskandar, 31750 Tronoh, Perak Darul Ridzuan

Abstract — The Belait Formation has been found to mainly consist of alternating sandstone and shale with conglomerate as the basal unit. There are five main facies that could be classified in the Belait Formation: 1) sandstone, 2) sandstone with clay drapes, 3) sandstone with carbonaceous material, 4) shale, and 5) conglomerate. Thermal conductivity analysis was done on the rock samples to understand the heat transfer between different rock facies. Apart from that, understanding the thermal conductivity characteristics enhances basin modeling and reservoir characterization. The general objective of this study was to estimate the thermal conductivities of rocks belonging to the Belait Formation and to link this information to the properties any possible signature trends that might bench mark the Formation. The study shows that there is an inverse relationship between the thermal conductivity and petrophysical properties such as porosity and particle size. The sedimentary rocks of the Belait Formation tend to have thermal conductivity values that are controlled by the internal fabric of the rocks. The relationship between thermal conductivity, porosity and particle size suggests that the trend line may be a unique signature for the Belait Formation.

INTRODUCTION

Liechti *et al*. (1960) stated that the Belait Formation mainly consisted of alternative sandstone with different proportion and thickness of sand and clay. These authors interpreted that the depositional setting to be a secluded basin in filled by material form deltaic-paralic and littoral sediment. The environmental changed from a deltaic-paralic environment and gradually developed into shallow marine and into fully marine environment. Belait Formation gradually merges the marine Lambir or Miri Formation (Liechti *et al*., 1960).

Mailvaganan (1974) stated that three different Formations (Belait, Lambir and Argillaceous Setap) were found in the Marudi area and described them on the basis of sandstone-shale ratios, the topography and depositional environment setting. Mailvaganan (1974) concluded that the Belait Formation has a 60:40 ratio of sandstone to shale and siltstone. Lambir Formation has a 40:60 ratio of sandstone to shale and siltstone and occurs in the lower elevations of Marudi area (Mailvaganan, 1974). The depositional environment for both Belait and Lambir Formation were interpreted to be tidal flats or estuaries environment. The Lambir Formation was deposited under marine influence. The Setap Formation is interpreted to have been deposited under shallow marine condition. Recent updates on the Cenozoic basins are given by Koopman (in Sandal, 1996) and an excellent account of the geology of NW Borneo has been given by Hutchison (2005).

Based on the above, it is evident that the distinction between the Lambir and Belait Formations has become somewhat arbitrary. Furthermore, it appears that spatial variability exists in this area and that arbitrary distinctions between two types of Formations may not be a suitable way to cater for this variability.

The thermal conductivity of the different rock facies is very important especially in oil and gas exploration. Knowledge of the thermal conductivity and the local geothermal gradient would provide the basis for a proper understanding of the behaviour/response of rocks or facies at a certain depth to geophysical exploration methods. Identification of potential source rocks, predicting the depth at which the source rock would be mature and predicting the properties of hydrocarbon (gas or oil) would be facilitated once the thermal conductivity is known. The viscosity, in the reservoir would also be possible if the thermal conductivity values were known. The thermal conductivity of rocks provides also an indication of the pressure, temperature and to some extent the volume of the fluid in the subsurface. Therefore, the thermal conductivity of different rock facies in Belait Formation could be of significant value in oil and gas exploration.

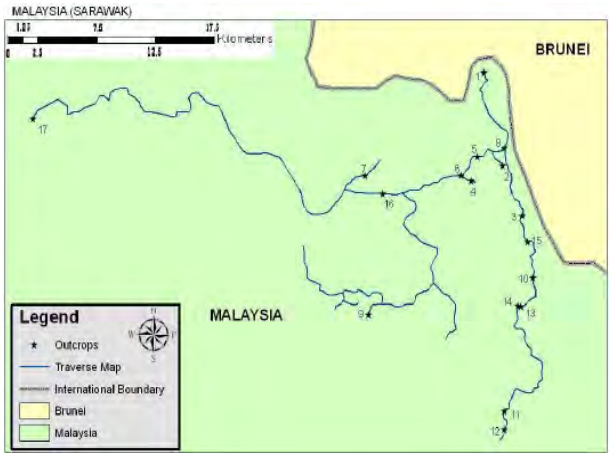


Figure 1: Map showing location of sampling points near Marudi, Sarawak.

Thermal conductivity of a rock is a function of the mineralogy, fabric/structure and conductivity mechanism of a specific rock (Clauser & Huenges, 1995). In sedimentary rocks, the paramount factors that would influence the thermal conductivity are porosity and anisotropy. Higher porosity causes lower thermal conductivity. This is attributed to lower thermal conductivity of air and other fluids like water and hydrocarbon that infill the pores of rock compared to the minerals. Consequently, a range of values have been reported (Birch 1966; Čermák & Rybach 1982; Haenel *et al*. 1988; Clauser & Huenges 1995; Clauser 2006).

Many methods have been developed to estimate the effective thermal conductivity of unsaturated porous rocks (Woodside & Messmer, 1961, Cosenza *et al*., 2003; Kohout *et al*., 2004, Gruescu *et al*., 2007; and Giraud *et al*., 2007). These models suffer from some weaknesses such as the general inability to establish relationships between electrical parameters and the effective thermal conductivity of the porous material.

Therefore, the general objective of this study was to estimate the thermal conductivities of rocks belonging to the Belait Formation. These estimates need to be evaluated to establish any possible signature trends that might assist in bench marking the Belait Formation.

MATERIALS AND METHODS

The study area is located NE of Marudi, Sarawak (Figure 1). Samples were collected along several outcrops in what has been identified as the Belait Formation. Samples were trimmed down to orthogonal blocks for the thermal conductivity analyses.

Samples were air dried for 1 week before being cut into small orthogonal blocks of dimensions 5 x 2 x 5 cm. Estimation of the thermal conductivity was carried out by constantly supplying heat to the rock sample for 20 minutes using a heater set at 100 W. After 20 minutes, two temperature readings were taken, one on either side of the sample. Both of the temperatures were taken simultaneously on the rock sample using a thermocouple linked to a data-logger. The differences between the two readings were measured as ΔT. The distances between the positions of the two readings were measured as L. The area, A, of the rock that touches the heater was also measured. The thermal conductivity of the rock sample was calculated by using the formula shown below. As this technique is somewhat cheaper and simpler to utilize compared to traditional methods, some variations in results can be expected.

Thermal conductivity is denoted as k or λ with measurement units of W $m^{-1}K^{-1}$ and represents the measure of heat flow per unit temperature gradient. The formula of thermal conductivity k and specific heat c is given below:

$$J_Q = -k\nabla T$$

$$Q = mc\Delta T$$

Based on these two equations, an equation was derived for thermal conductivity as shown below.

$$Q = -k\,A\frac{\Delta T}{\Delta x}$$

$$k = -\frac{Q\,L}{A\,\Delta T}$$

Q = Heat flow across the material
K = Thermal conductivity of the material
A = Cross sectional area of the material
ΔT = Temperature different (t_2-t_1)

RESULTS AND DISCUSSION

The Belait mainly consists of alternating sandstone and shale with conglomerate deposits as the basal unit. There are five main facies: 1) sandstone, 2) sandstone with clay drapes, 3) sandstone with carbonaceous material, 4) shale, and 5) conglomerate.

The results show that the thermal conductivity for the different facies and lithologies vary (Table 1). Generally, sandstones should have much higher thermal conductivity values compared to shales. One possible reason for this could be the mineralogy. Quartz in sandstones has higher conductivity compared to clay minerals. Thermal conductivity values are around 6.6 - 13 for quartz with mean values of 2.9 for clay minerals. However, since rocks are not homogeneous in terms of mineralogy, other minerals can also influence thermal conductivity. The thermal conductivity of pure sandstone, laminated sandstone- shale, ferruginous sandstone, sandstone with mud drapes and sandstone with mud clasts have different values (Table 1). Porosity and particle size of samples can also influence the thermal conductivity.

Thermal Conductivity versus Porosity

The results suggest that smaller particle sizes and lower porosities give high thermal conductivity values (Figure 2). Thermal conductivity drops steeply with

increasing porosity up until porosity values of around 10%. Subsequently, the thermal conductivity appears to be fairly constant with increasing porosity. Considering the fact that the facies assemblage sequence present in this Formation is not generally seen in Lambir Formation or any stratigraphic time equivalent Formations in the vicinity, it is proposed that the trend line that approximates the distribution of the data could be a possible signature for the Belait Formation. More work needs to be done in order to verify if it is possible to separate this Formation from other Formations based on thermal conductivity.

The results may also provide an indication on type of overburden pressure experienced by these rocks. Variations in the thermal conductivity within a group of sandstones, siltstones or shales can also be explained by a possible reduction in porosity due to increase in overburden pressure and therefore, an increase in thermal conductivity. In general terms, it has been noted that the thermal conductivity of rocks in the Malay Basin increase with increasing burial depth (Wan Ismail Wan Yusoff, 1984).

Thermal conductivity versus particle size

Similar trends were observed when thermal conductivity was evaluated against porosity (Fig. 3). The thermal conductivity drops steeply between clay to silt size (0 - 0.05 mm). This reaffirms the current knowledge that argillaceous materials have high thermal conductivities. Wan Ismail Wan Yusoff (1988) made similar observations working with Late Miocene shales from the Malay Basin. Subsequent to the initial steep decrease, thermal conductivity decreases at a much slower rate until particle size approaches that of very fine sand (0.15 mm). The thermal conductivity remains fairly constant when the particle size is larger than very fine grain sand (> 0.15mm). The data shows that clay, silt and sand tend to have different ranges of thermal conductivities.

These findings suggest that two rocks with same textural classification and porosities would have similar thermal conductivities. However, variations at the facies or subfacies level will change the thermal conductivity. Therefore, two rocks with the same thermal conductivity need not have the same internal fabric.

CONCLUSIONS

There is an inverse relationship between the thermal conductivity and petrophysical properties such as porosity and particle size. Sedimentary rocks of the Belait Formation tend to have thermal conductivity values that are controlled by internal fabric as the Formation has

Table 1: Thermal conductivity values for some of the sandstones and shales from the Belait Formation.

Sample No.	Temp Different (T1- T2)	Length (m)	Area (m^2)	Thermal Conductivity ($W\ m^{-1}k^{-1}$)	Particle Size (mm)	Estimated Porosity (%)
1	-43.2	0.011	0.0006	1.762752715	0.3500	25
2	-0.9	0.027	0.0012	207.6843198	0.0020	1
3	-41.8	0.039	0.0025	6.459081717	0.2500	15
5	-38.3	0.031	0.0023	5.603319334	0.0020	2
6	-11.6	0.022	0.0031	13.1294685	0.4000	20
9	-44.9	0.024	0.0014	3.700388772	0.0030	3
10	-11.6	0.014	0.0017	8.355116315	0.0035	4
13	-4.2	0.013	0.0020	21.42774728	0.0030	2
21	-26.5	0.005	0.0005	1.306190691	0.2000	25
23	-30.5	0.026	0.0014	5.901412367	0.0060	22
24	-27.5	0.018	0.0014	4.531294251	0.0030	2
26	-15.5	0.014	0.0005	6.252861242	0.0030	2
27	-21.9	0.02	0.0018	6.322201517	0.1700	23
35	-24.4	0.016	0.0019	34.76870122	0.0950	18
37	-9	0.01	0.0008	7.692011846	0.0800	20
39	-20	0.016	0.0010	78.81773399	0.4000	30
43	-8.2	0.033	0.0036	27.86009169	0.0700	15
44	-41.9	0.021	0.0016	3.469666441	0.0030	1.5
45	-21.2	0.031	0.0023	10.12297785	0.0035	2.5
46	-46.3	0.023	0.0017	3.438977218	0.0030	2
47	-16.8	0.018	0.0012	90.95318943	0.3000	20
49	-29.4	0.02	0.0010	69.41552131	0.0630	10
53	-9.4	0.005	0.0009	61.77873329	0.0030	2
55	-8.8	0.013	0.0010	152.6108189	0.0037	2
59	-22.2	0.014	0.0008	77.47305045	0.0850	15
63	-21.6	0.013	0.0026	23.14814815	0.0700	10
66	-32.8	0.041	0.0039	8.653513326	0.0630	10
72	-22.8	0.017	0.0022	5.161744791	0.004	8
79	-16.7	0.009	0.0017	32.07869974	0.063	5
82	-18.9	0.022	0.0011	110.8591585	0.2300	18

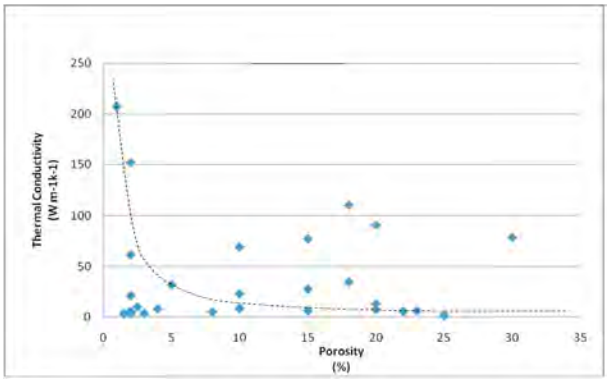


Figure 2: Graph showing the relationship between thermal conductivity and rock porosity. A best fit line shows a steep decrease in thermal conductivity until a porosity of about 5%.

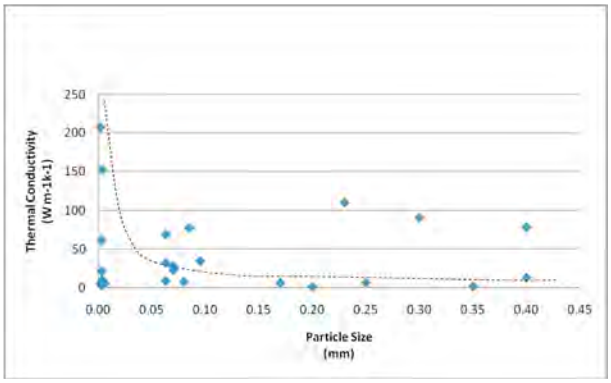


Figure 3: Graph showing the relationship between thermal conductivity and the particle size of. A best fit line shows three trends coinciding with three different particla size ranges.

several facies and subfacies. Taking into considering the fact that the facies assemblage present in this Formation is not generally seen in Lambir Formation or any stratigraphic time equivalent Formations in the vicinity, it is proposed that the trend line that approximates the distribution of the data could be a possible signature for the Belait Formation. This proposal is preliminary and the ongoing research is aimed at verifying this proposal. Such variations are also important for basin modeling as well as reservoir characterization.

ACKNOWLEDGMENT

The authors gratefully acknowledge the critical review, comments and suggestions given by Prof. Em. Dr. C.S. Hutchison and the anonymous reviewer.

REFERENCES

Birch, F., 1966. Thermal conductivity and diffusivity, in Clark SP Jr. (ed), Handbook of Physical Constants, rev. ed., Memoir 97, pp. 97-173, Geol. Soc. of America

Čermák, V. & Rybach, L., 1982. Thermal conductivity and specific heat of minerals and rocks, in Landolt-Börnstein, New Series, Group V(1a): Geophysics, pp. 305–343, Springer

Clauser, C. & Huenges, E., 1995, Thermal Conductivity of Rocks and Minerals, *Rock Physics and Phase Relations*, Ed. T. Ahrens, AGU. Discussion, data rock and minerals, statistical analysis rock types.

Clauser, C., 2006. Geothermal Energy, in Heinloth K (ed), Landolt-Börnstein, Group VIII: Advanced Materials and Technologies, Vol. 3: Energy Technologies, Subvol. C: Renewable Energies, pp. 493-604, Springer

Cosenza, P., Gu´erin, R., & Tabbagh, A., 2003. Relationship between thermal conductivity and water content of soils using numerical modelling, Eur. J. Soil Sci., 54(3), 581–588, 2003.

Giraud A., Gruescu, C., Do, D. P., Homand, F., and Kondo, D., 2007. Effective thermal conductivity of transversely isotropic media with arbitrary oriented ellipso¨ıdal inhomogeneities, Int. J. Solids Struct., 44(9), 2627–2647.

Gruescu, I. C., Giraud, A., Homand, F., Kondo, D., and Do, D. P., 2006 Effective thermal conductivity of partially saturated rocks, Int. J. Solids Struct., 44, 811–833.

Haenel, R., Rybach, L., & Stegena, L. (Eds.), 1988. Handbook of Terrestrial Heat-Flow Density Determination. Kluwer Academic Publishers, Dordrecht

Hutchison, C.S., 2005. Geology of North-West Borneo, Elsevier B.V. The Netherlands. 422pp.

Kohout, M., Collier, A. P., & S˘tepa´nek, F., 2004. Effective thermal conductivity of wet particle assemblies, Int. J. Heat Mass Tran., 47, 5565–5574.

Leichti, P., Roe, F.W. & Haile, N.S., 1960. The geology of Sarawak, Brunei and the western part of north Borneo, Bulletin 3, vol 1, Geological survey department British territories in Borneo.

Mailvaganam, Y., 1974. The Geology of the Marudi Area, Sarawak, Malaysia. B.Sc. Unpublished Thesis. University of Malaya.

Sandal, S. T., (Ed.) 1996. The geology and hydrocarbon resources of Negara Brunei Darusalaam. (Second Edition). Brunei Museum, Brunei & Brunei Shell Petroleum Co., Seria, Brunei Darusalaam.

Wan Ismail Wan Yusoff, 1984. Heat Flow in the Malay Basin. Combined Proceedings of the Joint ASCOPE/CCOP Workshops on Heat Flow. Bangkok, Thailand, October 26-28, 1984. CCOP Project Office UNDP Technical Support for Regional Offshore Prospecting in East Asia (RAS/81/120). p. 77-87.

Wan Ismail Wan Yusoff, 1988. Heat Flow in Offshore Malaysian Basins. Proceedings of the CCOP Heat Flow Worshop III. B. Elishewitz (Ed). Bankok, Thailand Nov 17-19, 1988. CCOP Technical Secretariat, Bangkok, Thailand. p.39-54.

Woodside, W. and Messmer, J. H., 1961. Thermal conductivity of porous media, I. Unconsolidated sands, J. Appl. Phys., 32, 1688–1699.

LETTER TO EDITOR

The Northwest Sabah trough is currently inactive

Comment on Two Recent Articles in Geological Society of Malaysia Publications

H.D. TJIA

Email: hdtamsp@streamyx.com

Two recent articles by Mustaffa Kamal Shuib (2009) and Kessler (2009) in the Bulletin No. 55 and Warta Geologi Volume 35 (3) reproduced two separate figures attributed to Simons et al. 2007. The "Northwest Borneo Trench" is shown to possess active reverse faulting on its Sabah side. When the digital internet article of Simons et al. became available, in early 2008*, I wrote an email to the primary author noting that seismic sections of BGR (Bundesanstalt fuer Geowissenschaften und Rohstoffe, Hannover, Germany) across the "trench" do not show any disturbance for the essentially horizontal reflectors in the top most 0.6 second TWT of the "trench" fill. This is especially clear on the seismic line BGR86-06 (a copy is in the Petronas data archive). Furthermore, geoseismic sections across the NW Sabah Trough published by Hazebroek & Tan (1993, pp. 203-204) show similar undisturbed conditions of the upper trough-fill sequence.

The undisturbed top 0.6 s TWT sediment sequence on the Sabah side of the trough is estimated to represent "Pliocene to Recent" (basing on dated seismic sections published by Levell & Kasumajaya, 1985) and suggests strongly that no crustal movement had occurred during that period on the Sabah side of the trough. It is unlikely that movement had occurred since the seismic sections were shot in the early 1980s. Moreover, Simons et al. (and Kessler) tie up of the "NW Borneo Trench" with the West Baram Line is not supported by seismicity. The epicenter of an MW 5.2 earthquake on 1 May 2004 did occur and is consistent wih left slip on the Tubau Wrench fault, striking N-S and located more than 60 kilometres to the southwest of the West Baram Line (see Yan, A.S.W. Saim Suratman, Adam Liau et al. 2006).

** The email to W. Simons at Delft, The Netherlands, has yet to be replied to.*

REFERENCES

Hazebroek, H. P. & D.N.K. Tan 1993, Tertiary evolution of the NW Sabah continental margin, Geological Society of Malaysia Bulletin 33: 195-210.

Kessler, F.L., 2009, The Baram Line in Sarawak: Comments on its anatomy, history and implications for potential non-conventional gas deposits. Warta Geologi 35 (3): 105-110.

Mustaffa Kamal Shuib 2009, The recent Bukit Tinggi earthquakes and their relationship to major geological structures. Geological Society of Malaysia Bulletin 55: 67-72.

Levell, B.K. & A. Kasumajaya 1985, Slumping of the Late Miocene shelf edge offshore West Sabah: A review of a turbidite basin edge. Geological Society of Malaysia Bulletin 18: 1-29.

Simons, W.J.F., Vigny, C.S., S. Abu *et al*., 2007, A decade of of GPS measurements in S.E. Asia: Sundaland motion and boundaries. Journal of Geophysical Research, 112 B06024. Doi: 101029/2005JB0033868.

Yan, A.S. W., Saim Suratman, A. Liau *et al*., 2006, Study of the seismic and tsunami hazards and risks in Malaysia. Report on the Geological and seismotectonic information of Malaysia. Jabatan Mineral dan Geosains Malaysia: 49+ pp., including Seismotectonic Map of Malaysia, Third Edition, and appendices.

How active are Sabah Trough and Baram Line?

A comment on a letter by H.D.Tjia, sent to the Geological Society of Malaysia

FRANZ L KESSLER

Email: franz@curtin.edu.my

Although the larger parts of the "Northwest Borneo Trench" are indeed seismically inactive, as rightfully stated by H.D.Tija in his letter, there are certain areas (such as the "allochthoneous sheet") that may have seen activity up to the late Pliocene – the picture below being a 2008 model, based on Shell seismic.

The exact location, and width of the Baram Line have been a matter of debate. In Simons *et al*. (2007), some evidence for tectonic activity in the area of the Baram Line is presented. Though the MW 5.2 earthquake of 1 May 2004 may not be in itself conclusive, or even directly related to the Baram Line, the differential relative speed of GPS-based block movements (between areas of Sabah (Kota Kinabalu) and Sarawak (Bintulu), for instance) speaks a stronger language.

Somewhere between KK and Bintulu, contemporaneous compression and/or strike slip movements in the order of 1-3 mm/year have to be inferred.

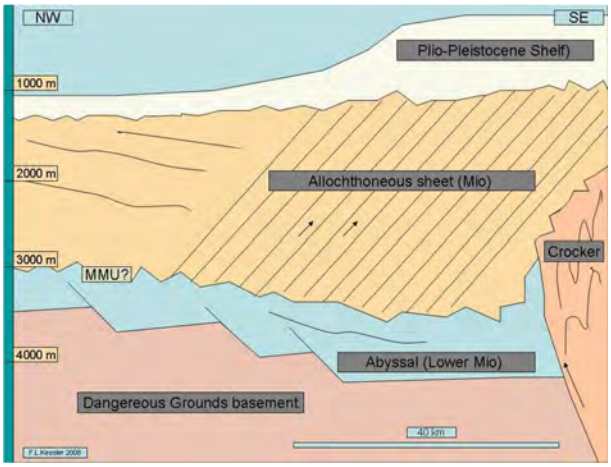
With evidence that the axis of Baram Delta oilfields immediately East to the Baram Line have been bent from NE/SW to NW/SE (again Pliocene, possibly younger)- see Tan *et al*. (1999) - this phenomenon occurring near to the edge of the "Northwest Borneo Trench" -could be seen as further circumstantial evidence for young tectonic activity along the SW edge of the "Northwest Borneo Trench", the so-called Baram Line.

In a nutshell, the "Northwest Borneo Trench" is predominantly inactive, but the SW boundary, the Baram Line, could be active.

REFERENCES

Simons, W. J. F., Socquet, A., Vigny, C., Ambrosius, B.A.C, Haji Abu, S.,Chaiwat Promthong, C., Subarya, C., Sarsito, D.A., Matheussen, S., Morgan, P., Spakman, W. (2007): A decade of GPS in Southeast Asia: Resolving Sundaland motion and boundaries. Journal of Geophysical Research, 112, B 06420, 20 pages.

Tan, D.N.K, Abdul Hadi b. Abd. Rahman, Azlina Anuar, Boniface Bait, Chow Kok Tho (1999): West Baram Delta. In: The Petroleum geology and resources of Malaysia. Petroliam Nasional Berhad (PETRONAS), Kuala Lumpur, 293-341.



A section in coastal offshore Sabah

Petroleum Geology Conference & Exhibition 2010
Kuala Lumpur Convention Center
29 - 30 March, 2010

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

PROGRAM

Sunday 28th March 2010

6:00-9:00 pm	**Registration** (sponsored by BHP Billiton) Registration Counters at Level 3

DAY-1: Monday 29 March 2010

8:00 – 8:50 am	**Registration** (sponsored by BHP Billiton) Registration Counters at Level 3
8:50am-9:40am	**Opening Ceremony** (sponsored by Mubadala Oil and Gas) Plenary Hall
9:40-10:30am	**Keynote Address -** Rapidly integrate R&D into the mainstream workflow and bring software closer to operations through an open software framework. Ms Ceri Powell, Executive Vice President Exploration, SHELL Upstream International
	PGCE Student Excellence Award Presentation (sponsored by PGS)
10:30 – 11:00 am	**Coffee Break** (sponsored by UZMA Berhad) Exhibition Hall Foyer at Level 3
	Exhibition Tour Ballrooms 1 and 2
11:00 – 11:30 am	**Key Paper 1:** Banquet Hall Recent Developments and Future Challenges In 3D Reservoir Modelling Alister C. MacDonald, Technical Advisor, Roxar, Oslo

	GEOPHYSICS Session 1	GEOLOGY Session 2
	Conference Hall 1 Theme: Geophysical Acquisition Session Chairmen: M Hasni M Hashim (PRSB) and Roland Spuij (Shell)	Banquet Hall Theme: Petroleum System Analysis Session Chairmen: Mohd Izham Ismail (ExxonMobil) and Low Yew Lim (PCSB)
11:30 – 11:55am	Geophysics Paper 1 True amplitude seismic imaging beneath gas cloud using full waveform transmission deconvolution. Ahmad Riza Ghazali (PRSB, Delft) D.J.(Eric) Verschuur and Dries Gisolf (Delft)	Geology Paper 1 North West Borneo Deepwater Fold and Thrust Belt: What Controls the Hydrocarbon Column Height? William Ngu, Tomas Van Hoek, William Wilks, Peter Shiner and Charlie Lee (Shell)

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

11:55 – 12:20 am	**Geophysics Paper 2** Time-Depth Conversion Challenges in the Overpressure Environment, a Case Study from Caspian Sea. **Alex Tarang, Yesphal Singh and Yekaterina Levshina (PCSB)**	**Geology Paper 2** Deep Pore Pressure Prediction in Challenging Areas, Malay Basin, SE Asia. **Richard Swarbrick (GeoPressure), Rick Lahann (Indiana University), Stephen O'Connor (GeoPressure) and Jamaal Hoesni (PRSB)**
12:20 – 12:45 pm	**Geophysics Paper 3** 3D Seismic Acquisition for HP-HT Exploration of Block PM303: Technical and HSE issues. **Patrick Ravaut, Jaflis Jaafar and Emilie Renoux (Total)**	**Geology Paper 3** Fitting Sumandak Stratigraphy into Sabah Regional Chronostratigraphic Framework **Tengku Mohd Syazwan bin Tengku Hassan, Hamzah Bin Harun and Othman Ali Bin Mahmud (PCSB)**
1:00 – 2:00 pm	**LUNCH (sponsored by Mubadala Oil and Gas)** Conference Halls 2 and 3	
	GEOPHYSICS Session 3 Conference Hall 1 **Theme: Processing and Imaging** Session Chairmen: Joseph Koh (Schlumberger) and Cheikh Ahmed Ould Ahmed Benan (TOTAL)	**GEOLOGY Session 4** Banquet Hall **Theme: Reservoir Characterisation and Modelling** Session Chairmen: Mark Sams (Fugro-Jason) and Stephen Reeve (Halliburton)
2:00-2:25 pm	**Geophysics Paper 4** Unmasking the Crest, Imaging below Shallow Gas Using Prestack Q Depth Migration, Irong Barat Field, Malaysia **Joseph Reilly, Raffaella Montelli Muhammad Firdaus Mohd Fuad, Lee Wamsteeker, and George McKinley (ExxonMobil)**	**Geology Paper 4** Updating Reservoir Models; Auditing, Updating and Rebuilding **Stephen Tyson (UNSW)**
2:25 – 2:50 pm	**Geophysics Paper 5** The Importance of Including Overburden and Survey Illumination Effects in Reservoir Seismic Simulation **Åsmund Drottning, Isabelle Lecomte and Mike Branston (NORSAR)**	**Geology Paper 5** Contrasting Dolomite Textures of Miocene Carbonate Platforms in Central Luconia, Sarawak, Malaysia **Rulliyansyah and Bernard J. Pierson (UTP)**
2:50 – 3:15 pm	**Geophysics Paper 6** 3-D Tomographic Q Inversion for Compensating Attenuation Anomalies **Kefeng Xin and Barry Hung (CGGVeritas)**	**Geology Paper 6** Fractured Basement Characterization From Multi-Attributes Guided Integrated Continuous Fracture Modeling And Discrete Fracture Network Modeling **M. Lefranc, A. Carrillat and A. Carnegie (Schlumberger)**

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

3:15 – 3:40 pm	Geophysics Paper 7 Removing Non-Stationary Artifacts from Seismic Velocity Data Sets by M-Factorial Kriging Cedric Magneron (Estimages), Jacques Deraisme and Matthieu Bourges (Geovariances)	Geology Paper 7 Spatial Variability In The Belait Formation: Impact On Reservoir Characterization And Management Considerations. E. Padmanabhan (Curtin)
3:40 – 4:00 pm	**TEA BREAK (sponsored by Murphy)** Exhibition Hall Foyer at Level 3	
	GEOPHYSICS Session 5 Conference Hall 1 **Theme: Seismic Interpretation** Session Chairmen: Rosly Md Nor (PCSB) and Tony Weatherall (CGGVeritas)	**GEOLOGY Session 6** Banquet Hall **Theme: New Play Type** Session Chairmen: Robert Wong Hin Fatt (PETRONAS) and Lawrence Bernstein (Talisman)
4:00 – 4:25 pm	Geophysics Paper 8 Integrating Geophysical Technologies for 4D Seismic Pressure-Saturation Analysis in Angsi Field Shuhadah Basaharudin, Salbiah M Sahad, Haziqah Othman,Salbiah Isa, Dr MK Sengupta and M Firdaus A Halim (PRSB)	Geology Paper 8 In the Quest of Open Fractures in the Crystalline Basement of the Malay and Penyu Basins H.D. Tjia (Orogenic), Zuhaini Mohamed, Ariffin Suhaidi Mat Saad, Ahmad Ridhwan Abd Rahim, Jusmila Baharom (EnergyQuest), Mazlan Md Tahir, Shahril Jamil, Nurul Fizziyana Ismail and Azani Abdul Manaf (PMU)
4:25 – 4:50 pm	Geophysics Paper 9 Linapacan Limestone Fracture – Illuminated through Seismic, A case study J.P. Micu, J.B. Barajas (Pitkin), V.W.T. Kong, Pang Ching Mei (Schlumberger)	Geology Paper 9 Delineation Of Stratigraphic Prospect From The Integrated Analysis Of Geological Model, Well And 3d Seismic Attributes – A Case History From Temana Field, Sarawak, Malaysia. Amit Roy, M Al-Amin B Abd Mutalib,Ravi Kant Pathak (PCSB)
4:50 – 5:15 pm	Geophysics Paper 10 CSEM Survey in Deepwater Sarawak: Challenge and Learning Continues Nurul Saadah, Sandeep K. Chandola, Fatma Nazihah, Lee Poh Kin, Tayallen (PCSB), Lim Toon Hoong, Lars Lorenz, Syarina Azura Mohamad and Tan Kian Wei (EMGS)	Geology Paper 10 Occurrence of Hydrodynamic Play in Malaysia Robert Wong, Azani Manaf, Meor Syazwan Meor M Aiyub, Mohd Irwani Sadi, Mohd Farizanudin Jaapar and Nuraman Nusral (PMU)
6:00 pm	**ICEBREAKER (sponsored by PGS)** Exhibition Hall Foyer at Level 3	

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

DAY-2: Tuesday 30th March 2010

	GEOPHYSICS Session 7 Conference Hall 1 Theme: Geophysical Acquisition, Processing and Imaging Session Chairmen: A Manaf Mohammad (PETRONAS) and Ahmad Ridzuan Mohd Tahir (UZMA Berhad)	GEOLOGY Session 8 Banquet Hall Theme: Exploration Case Study Session Chairmen: John Jong Tiang Shen (Nippon Oil)
8:30 – 8:55 am	Geophysics Paper 11 MAZ Depth-Velocity Modelling and Imaging With Azimuthal Anisotropy **S.Birdus (CGG Veritas), E.Angerer, I.Abassi (OMV) and K.Shamis(CGG Veritas)**	Geology Paper 11 Successful Application of Real-Time Pore Pressure and Fracture Gradient Modeling in Deepwater Exploration Wells **Don S. Basuki (Baker-Hughes)**
8:55 – 9:20 am	Geophysics Paper 12 Seismic Data Conditioning of Partial Stacks **Efthymiou, H. Morris, P. Wild and M.Kemper (Ikon Science)**	Geology Paper 12 Fractured Basement Exploration Case Study in Malay Basin **Mohamad B Kadir (PCSB)**
9:20 – 9:45 am	Geophysics Paper 13 An Interpration of Gravity and Magnetic Data for Hydrocarbon Exploration in the Sirt Basin (Central North of Libya) **Ahmed. S. Saheel, Abdul Rahim Bin Samsudin and Umar bin Hamzah (UKM)**	Geology Paper 13 Continued Success in a High Subsurface Risk Environment; the Cendor Story **C.Y. McCants, Hanif Hashim, Gary Leaf, Wan Nawawi, and Natasya Pawanteh (Petrofac)**
9:45 – 10:10 am	Geophysics Paper 14 Coil Shooting – Full Azimuth acquisition with a Single Towed Streamer Vessel **Michelle Tham (Western GECO)**	Geology Paper 14 The Penyu Basin Revisited: The Abandoned 'Mate' of the Malay-Natuna Basin **Restrepo-Pace, P., King, S., Jones, R., Goulder, C., Ah Chim, Y. and Russell, C. (Lundin)**
10:15 – 10:45 am	**COFFEE BREAK (sponsored by TOTAL)** Exhibition Hall Foyer at Level 3	

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

10:45 – 11:15 am	**Key Paper 2:** Banquet Hall Rapidly integrate R&D into the mainstream workflow and bring software closer to operations through an open software framework. **Stephen Warner, Geoscience Business Manager Middle East and Asia, Schlumberger Information Solutions**	
	GEOPHYSICS Session 9 Conference Hall 1 **Theme: Seismic Interpretation** Session Chairmen: Jamlus Md Yasin (PCSB) and Mr. Robert Dean (PGS)	**GEOLOGY Session 10** Banquet Hall **Theme: Reservoir Characterisation and Modelling** Session Chairmen: Nicolas Bianchi (Beicip-Franlab) and Gavin Lindsay (Baker-Hughes)
11:15 – 11:40 am	Geophysics Paper 15 The Role of Elastic Rock Properties Conditioning for Quantitative Interpretation of Seismic Amplitudes in the Sarawak Basin, Malaysia. **Noreehan Bt Shahud (presenter), Yeshpal Singh and Nurhakimah Mohamud (PCSB)**	Geology Paper 15 Construction of Static Model for Structural Complex Area in Deep Water Environment **Setiyo Pamungkas (PCSB)**
11:40 – 12:05 pm	Geophysics Paper 16 Application of Spectral Decomposition and Inversion to Understand the Structural Development of Thrust Belts **Mirza Naseer Ahmad (LMKR), Shamim Haider and Ramly B Manja (Carigali)**	Geology Paper 16 Quantitative Integration of Geology and Geophysics for Reservoir Modelling: A Case Study. **Mark Sams (Fugro-Jason), Ian Millar, Wawan Satriawan (Premier Oil Vietnam), Denis Saussus and Sumon Bhattacharyya (Fugro-Jason)**
12:05 – 12:30 pm	Geophysics Paper 17 Increasing the Accuracy of Depth Conversion using Hybrid Velocity Modelling: Case Study at South East of Malay Basin **M Hafizal Zahir, Ang Chin Tee, Salbiah M Sahad, Nor Azhar Ibrahim, Boshara M Arshin and M Faizal Rahim (PRSB)**	Geology Paper 17 Closing-the-Loop between Reservoir Models and Seismic Gains through the Pains **Timothy Barker, Ngu Chee Kiong, Simon McMahon, Norasyikin Mahmud, Ti Ooi Chin, and Ting Tai Ming (Shell)**
12:30 – 12:55 pm	Geophysics Paper 18 Hydrocarbon Exploration in a Tertiary Stratigraphy of the Offshore, Nile Delta Basin, Egypt **Mohamed Ibrahim (PICL), Gamal R. Gaafar (PETRONAS), Eslam Esmaiel, and Ayman Hassan (PICL)**	Geology Paper 18 Successful Application of Thin Bed Petrophysical Evaluation Workflow in Deep-Water Turbidite Environment: Case Studies from Fields Offshore Malaysia. **Budi Priyatno Kantaatmadja, Azizul Mah Hassan (PMU), Mohd Nor Hisham Mohd Azam, Mohd Abd Rasheed Mohd Abdul Rahman and Richard Leech (Schlumberger)**
1:00 – 2:00 pm	**Lunch (sponsored by Shell)** Conference Halls 2 and 3	

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

	GEOPHYSICS Session 11 Conference Hall 1 Theme: Seismic Interpretation Session Chairmen: Muhamad Pedro J. Barbeito (TechnoRada) and Hoh Swee Chee (Murphy)	GEOLOGY Session 12 Banquet Hall Theme: Exploration Case Study Session Chairmen: Paul Carroll (BHP Billiton) and Hanif Hashim (Petrofac)
2:00 – 2:25 pm	Geophysics Paper 19 Identification And Modelling Of Karst Features In A Carbonate Field, Sarawak Basin Malaysia Liew Wei Long, Nguyen Huu Nghi, Goh Sing Thu and Rahim Masoudi (PMU)	Geology Paper 19 Geological Modeling of Complex Fluvial lacustrine System, case study from Oil Field Central Muglad Basin – Sudan Ahmed Ziada and Musa'b Elmahi (GNPOC and Sudapet)
2:25 – 2:50 pm	Geophysics Paper 20 The Roles of Coal in Hydrocarbon Exploration in the Malay Basin: The Good, the Bad and the Ugly Deva Ghosh, Samsudin Jirim, Salbiah Isa (PRSB) and Peter Abolins (PCSB)	Geology Paper 20 Deepwater Thin-Bed Depositional Settings : A Geological Framework From Nw Sabah Debnath Basu, Francis Kalukal (Schlumberger), M Farid B M Pushiri and Goh Sing Thu (PMU)
2:50 – 3:15 pm	Geophysics Paper 21 Over-Under Deghosting Bruno Gratacos (CGG Veritas)	Geology Paper 21 The Major Trends Of Palynomorphs Distribution In Three Fluvial Systems, Peninsular Malaysia Azmi M Yakzan, Shamsudin Jirin, Sahriza Salwani Md Shah (PRSB) and R.J Morley (PALYNOVA)
3:15 – 3:40pm	Geophysics Paper 22 A Systematic Seismic Approach Toward a Major Gas Discovery of "Subtle" Structural Trap in North Malay Basin Ji Ping, Zuliyana Ibrarim, Norhafizah Mohd (PETRONAS)	Geology Paper 22 Hydraulic Top Seal Failure – The Relationship Between High Pore Pressure and Hydrocarbon Preservation in HP/HT Regions. Richard E. Swarbrick, Stephen A. O'Connor, Richard W. Lahann, Phillip Clegg and David T. Scott (GeoPressure)
4:00 – 5:00 pm	**Closing Ceremony** Banquet Hall	
5:10 -- 5:30 pm	**TEA BREAK** (sponsored by Nippon Oil) Exhibition Hall Foyer at Level 3	

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

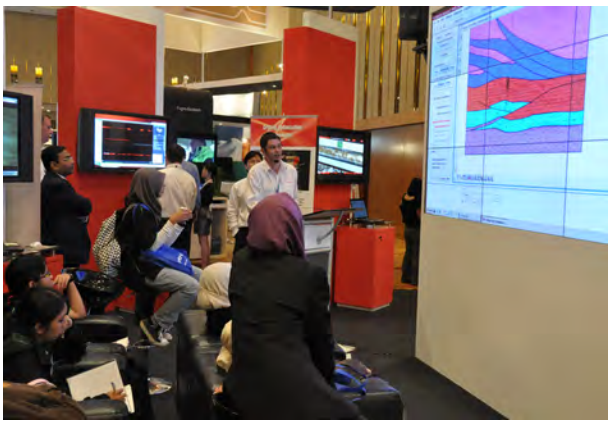
Kuala Lumpur Convension Center, 29 – 30 March 2010

PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

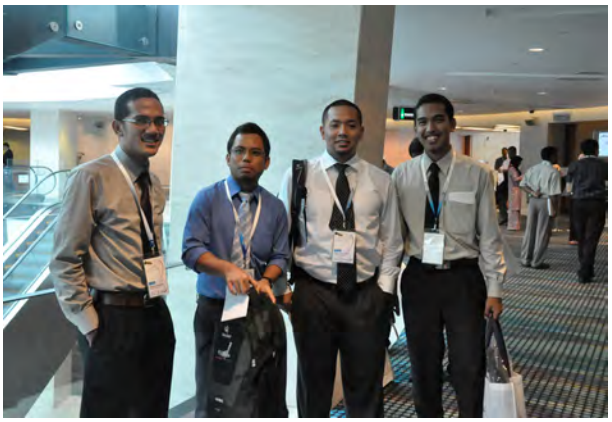
PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010



PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010



PETROLEUM GEOLOGY CONFERENCE & EXHIBITION 2009

Kuala Lumpur Convension Center, 29 – 30 March 2010

CHAIRMAN'S LECTURE NO. 15

ENGINEERING GEOLOGY - 3 RECENT (2009) CASE STUDIES

TAN BOON KONG

22nd January 2010
Department of Geology, University of Malaya

Mr. Tan Boon Kong, Chairman of the Working Group on Engineering Geology, Hydrogeology and Environmental Geology delivered the 15th Chairman's Lecture entitled "Engineering Geology - 3 Recent (2009) Case Studies". The lecture was attended by some geologists and geotechnical engineers from the academics, public and corporate sectors.

Mr. Tan, who is a Consultant Engineering Geologist generously shared his findings for the 3 projects he had involved recently. He shared the various factors considered for the option of tunnel or viaduct for a stretch of the proposed Kuala Lumpur Outer Ring Road. He also briefed the audience the soil profile and soil chemistry of the proposed new Kuala Lumpur Low Cost Carrier Terminal. Mr. Tan finally shared some of the results of the engineering geological mapping he had carried out for some of the pinnacles in the Sunway Lagoon Theme Park, Petaling Jaya.

CERAMAH TEKNIK TECHNICAL TALK

Stratigraphic relationship and correlation of the Paleozoic units of Myanmar and Malaysia

PROFESSOR DR AYE KO AUNG

10th February 2010
Program Geologi, Universiti Kebangsaan Malaysia

A technical talk entitled "Stratigraphic relationship and correlation of the Paleozoic units of Myanmar and Malaysia" had been presented by Prof. Dr Aye Ko Aung (formerly Head of Department of Geology Dagon University, Myanmar) to an audience of around 40 people comprising staff and students from UKM and JMG. The talk was delivered at the Program Geologi, Universiti Kebangsaan Malaysia on 10 February 2010.

Abstract — The Paleozoic unit of Myanmar is closely correlatable with those from Malaysia in aspects of stratigraphy and paleontology. The Latest Cambrian units of the Ngwe Taung Group of Pyin Oo Lwin District and the Molohein Group of southern Shan State both obtaining a prominent assemblage of saukiid trilobites which also occurs in the Machinchang Formation of Malaysia. The Ordovician units of Myanmar in each stage is established as, from lower to upper: the Lokepyin Formation of Arenigian, Wunbye Formation of southern Shan State and "Sitha Formation" of Pyin Oo Lwin township (Llanvirnian-Llandeilian), Nan-on Formation of southern Shan State and Khun Lein Formation of Pyin Oo Lwin township(Caradocian) which are correlatable with the Kakibukit Limestone for the whole Ordovician of Malaysia. The Myanmar Silurian has two formations such as the Nyaungbaw Formation in Pyin Oo Lwin township and the Linwe formation in southern Shan State, both of which yield a variety of species of graptolites which are also recognized in the Silurian unit of Malaysia such as Tanjong Dendang Limestone represented as Lower Detrital Member and Mempelam Limestone (upper Setul Limestone) in Langkawi Island. The Early Devonian sequence of both of Myanmar and Malaysia seems to be the same, consisting of some prominent dacryoconarid tentaculites such as Nowakia acuraria and graptolite species, Monograptus uniformis. The correlation of the Early Devonian (Pragian-Emsian) Zebingyi Formation of Pyin Oo Lwin township in Myanmar and the Mahang Formation in northwest Malaysia is indeed interesting on the occurrences of dacryoconarid tentaculites and graptolites. In the case of Middle Devonian, there is an extensively covered Middle Devonian unit designated as the Maymyo Formation, consisting of the sequence of dolomitic limestone, shale and coralline limestone which have even been recognized as a biostrome previously well known as the "Padaukpin coral reef" and its comtempory unit the "Wetwin Shale" chiefly composed of black and buff shale in cooperated with gypsum and anhydrite precipitation. This sequence ranges from Middle Devonian (Eifelian) to Late Devonian (Frasnian), the latter only is reported from the Singa Formation of Langkawi Island. There may be some equivalent units of Carboniferous and Permian age of Myanmar and Malaysia, indeed the Myanmar Early Carboniferous (Visean) foraminifera are identical with those of the Kuantan area, east Malaysia such as Eosteffella mosquensis. The Permian of Myanmar is recognized by the presence of coralline limestone consisting of rugose coral species of Pavestehphyllum, Ipciphyllum, Waagenophyllum, Lophophyllidium, Polythecalis, and Yatsengia which give the geological range of Artinskian-Tatarian. The age of the Permian corals is testified by the occurrence of fusulinids (Neoschwagerina-Verbeekina) zone.

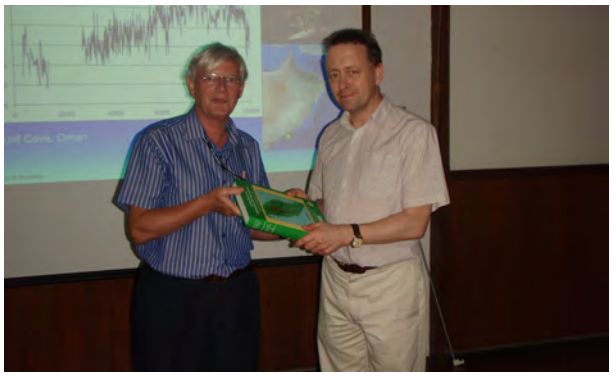
Headwater capture and drainage re-organization in Asian river systems traced by isotope provenance methods

PETER CLIFT

Kilgour Professor in the Department of Geology & Petroleum Geology, University of Aberdeen, United Kingdom

11th March 2010
Department of Geology, University of Malaya

Abstract —The Indus River was formed immediately following the India-Asia collision and is know to have undergone major re-organization and headwater capture events since that time. In this study we used U-Pb dating of zircon grains and Pb isotopes in K-feldpsar grains to see how the river has evolved during the Holocene in response to a strengthening and then weakening monsoon. Our data show that the Sutlej and Beas River used to flow much further SE on the edge of the Thar Desert but switched away to the north into the modern Punjab around 4-5 ka, probably contributing to the collapse of the Indus Valley Civilization Our data also show that zircon grains take ca. 5 ky to travel from the Himalaya to the Indus delta and that reworking of older sediments in the foreland have dominated the delta sediment budget since ca.5 ka. U-Pb zircon dating of zircons and Ar-Ar dating of micas in the Red River system shows that the present river has been close to its present state in Vietnam since the Late Miocene, implying surface uplift and drainage capture much earlier, likely starting in the Oligocene in SE Tibet. Ar-Ar ages indicate that the Lo River is the most important net contributor to the modern Red River delta. However, this contrasts with zircon U-Pb data indicating that the upper reaches of the Red River dominate that mineral group. We suggest that the mis-match reflects the rapid transport of mica relative to zircon in the river and the fact that the Red River is not in equilibrium. We hypothesize that the zircons were eroded >8 ka under a regime of stronger monsoon that enhanced erosion in the northern drainage basin, while modern erosion is focused in the south, especially in the Song Chay Massif."



"Professional Code of Conduct"

DATO' PADUKA IR HJ KEIZRUL ABDULLAH

31st March 2010
Department of Geology, University of Malaya

The talk on "Professional Code of Conduct" was delivered by Dato' Paduka Ir Hj Keizrul Abdullah, Immediate Past President of IEM and formerly Director-General of the Drainage and Irrigation Department, on 31st March 2010 at University of Malaya. The speaker touched on a wide range of topics, beginning with some historical background on the formation of professional bodies, Registration of Engineers Act, regulations on do's and don'ts, penalties for breaches of the Code, legal vs ethical, etc. Several examples were presented as illustrations. Though the talk was based on the scenario for engineers, it is also highly relevant to the case of geologists, especially in view of the recent Registration of Geologists Act. Interesting discussions followed the talk, which was very educational and illuminating, to say the least.

Tan Boon Kong
Chairman, Working Group on Engineering Geology, Hydrogeology & Environmental Geology

BERITA-BERITA PERSATUAN
NEWS OF THE SOCIETY

KEAHLIAN MEMBERSHIP

1. Mohd Nor Afifi bin Mohd Roselly
2. Nor Ridhwah bt Abdol Malek
3. Nur Izatul Qistina bt Rokbi
4. Brendawati bt Ismail
5. Ong Hock Kim
6. Mohammed Ismael Abu Shariah
7. Sawsan Kamel Shariah
8. Suhaylah bt Haron
9. Muhd Fawwaz bin Zainal Abedin
10. Chin Chun Ping
11. Arif Aizat bin Mohd Hilmi
12. Muhammad Junaidi bin Zahidun
13. Mohd Ramzi Zhafri bin Ramli
14. Zuhidayati bt Zainal Abidin
15. Mohd Nazaruddin Mokhri
16. Kenny Lim Hock Beng
17. Oh Danny Beng Teck
18. Nurul Syafiqah bt Abdollah
19. Nurul Iman bt Saiful Bahari
20. Faris bin Mohamed Zulkifli
21. Heng Fook Jin
22. Lee Hui Choo
23. Mohd Hisyamuddin bin Ahmad Kamil
24. Mohd Hafiz Mad Rani
25. Kong Chai Chen
26. Nadine Levone Charles
27. Jiang Yuchen

PERTUKARAN ALAMAT CHANGE OF ADDRESS

1. Chong Foo Shin, 153 Adira, 8 Persiaran Residen, Desa Park City, 52200 Kuala Lumpur
2. Rushdi Mohd Yusoff, No. 5, Jalan Pinggiran USJ 1/14, Taman Pinggiran USJ 47610 Subang Jaya
3. Onn Mohd Sidi, No. 13, Jalan Casa Mekar 1, Taman Casa Mekar, Sg. Merab,43000 Kajang
4. Dominique Dodge-Wan, P.M.B. No. 665, Locked Bag 12, 98000 Miri

GSM PHOTO COMPETITION
University of Malaya , 25 March 2010

Fifty nine entries were received for the GSM 2009 Photo Competition. Judging was conducted at University of Malaya on 25th March, 2010. Entries were received from professional geologists, educators, students (including a secondary school student), and the general public. Photographs were displayed at PGCE 2010.

JUDGES

Prof. Dr. Harry Doust, University of Malaya and Vrije Universitaet, Netherlands
Prof. Dr. John Kuna Raj, University of Malaya
Prof. Dr. Charles S. Hutchison, University of Malaya
Prof. Dr. Lee Chai Peng, University of Malaya

RESULTS

FIRST PRIZE – RM1000
Joanes bin Muda (JMG Sabah)
Stepped Shore Platform
Steeply dipping sandstone/mudstone beds (Tajau member of Kudat Fm.) eroded by waves.
Kudat, Sabah
Canon Ixus 8601s

SECOND PRIZE – RM500
Nur Iskandar Taib (University of Malaya)
The Grand Old Lady
Miri #1, Malaysia's first oil well. Photographed in infrared.
Miri, Sarawak
Pentax K100D Super, 18-55mm f3.5 lens, Hoya R72 filter. ¼ sec. f11, 40mm, ISO200

THIRD PRIZE – RM300
Chuah Seong Teng (PETRONAS)
Deepware Icnofacies Spiral Pascichnia
Trace fossil observed at the base on sand in Crocker Formation, Sabah
Lok Kawi heights, Kota Kinabalu, Sabah
Nikon D90

CONSOLATION PRIZE – RM100
Joanes bin Muda (JMG Sabah)
Active Hotspring Cones
The hotspring is located within the Tawau Volcanic Complex of Pleiocene-Pleistocene age.
Sungai Apas Kiri, Tawau, Sabah
Canon IXUS 8601s

CONSOLATION PRIZE – RM100
Ahmad Farhan b. Salman Farsi (Kolej Sultan Abd. Hamid)
"Geopark" at Gunung Keriang
South Western face of Gunung Keriang, showing weathered limestone formation and structure. (The state authority is promoting development of a resort with the geological ambience of the limestone hill.)
Gunung Keriang, Kedah
Canon EOS 50D, EFS 17-55mm, 1/250 sec. f6.3, ISO250

CONSOLATION PRIZE – RM100
Khairul Azlan Mustapha (University of Malaya)
Tight Fold
Tightly folded slate-quartzite
Tanjung Kempit, Endau, Johore
Nikon Coolpix L4

CONSOLATION PRIZE – RM100
Franz L. Kessler (Curtin University, Miri)
Kelalan Clastics at the Baram River
Intensely folded deep marine clastics of the Rajang Group
LONG LAMA, Sarawak
Panasonic Lumix

CONSOLATION PRIZE – RM100
Khairul Azlan Mustapha (University of Malaya)
Wave Erosion
Due to extensively wave erosion on granite surface which form a unique morphology
Kemaman Beach, Trengganu
Nikon Coolpix L4

BERITA-BERITA LAIN
OTHER NEWS

IGCP: 2010 Call for New Project Proposals

THE INTERNATIONAL GEOSCIENCE PROGRAMME (IGCP) - formerly International Geological Correlation Programme - is a joint endeavour between the IUGS (International Union of Geological Sciences) and UNESCO (United Nations Educational, Scientific and Cultural Organization).

The objectives of IGCP are met through individual projects. The number of active projects in any given year depends on the current priorities of UNESCO and IUGS, the availability of funds, the success and progress of existing projects and the quality and merit of newly submitted proposals.

BACKGROUND: The success of the Programme and individual projects is the result of the dedication of project leaders and the enthusiasm, support, and participation of geoscientists from around the world. Projects often build upon existing activities within participating countries, and attract additional funds from governmental and other agencies.

Project proposers should identify the societal relevance of their work, address the challenge of capacity-building in developing countries, emphasize education and training, including a focus on under-represented groups (e.g. youth, women, ethnic minorities, etc.).

DURATION: IGCP projects are approved for a period not exceeding five years. Individual projects are reviewed annually after the second year and may be terminated if performing poorly as identified during a review.

FINANCIAL SUPPORT: The annual allocation of support for each project depends upon its quality and, for an already funded project, upon its performance during the previous year. The financial support provided annually by IUGS and UNESCO for IGCP projects covers part of the costs of organizing and managing research (not to the research itself), meetings and workshops related to the project, as well as to facilitate participation by scientists from developing countries. In general, IGCP funds cannot be used for items such as data gathering (e.g., field and laboratory expenses). Moreover, the allocated sum should not be used exclusively to cover the travel expenses of project leaders. These limited funds provide 'seed money' to assist in the acquisition of additional funds from other sources. Past experience indicates that successful IGCP projects are able to secure significant additional funding from other sources. The actual amount of funding provided annually to IGCP projects reflects the collective decisions of UNESCO and IUGS.

EVALUATION: IGCP projects must successfully meet the following criteria:

- focus on high-quality science relevant to the scientific objectives of the IGCP;
- meet a need of international importance and societal relevance;
- emphasize interdisciplinary cooperation;
- constitute international participation including scientists from developing countries;
- demonstrate potential for both long-term and short-term geoscientific and/or societal benefits;
- explicitly acknowledge the sponsorship of UNESCO, IUGS, and IGCP; and,
- promote global geoscience visibility. For example, through the publication of scientific results using internationally recognized journals or other media

UNESCO and IUGS jointly appoint members to the IGCP Scientific Board. Individual IGCP proposals and Annual Reports are assigned to thematically appropriate members of the Scientific Board for initial evaluation of their scientific merit and relevance to IGCP objectives. Select members of the IGCP Scientific Board collectively consider the initial evaluations and prioritize applications for funding.

TOPICS FOR IGCP PROJECT PROPOSALS

IGCP welcomes proposals on the following topics:

- **GEOSCIENCE OF THE WATER CYCLE**

Life on Earth depends on water and its sustainable use is crucial for continued human existence. Earth's water resources include surface/ground water, ocean water, and ice. The study of Earth's water involves understanding and managing both surface and groundwater systems, including sources, contamination, vulnerability and history of water systems.

- **GEOHAZARDS: MITIGATING THE RISKS**

Geohazards include earthquakes, volcanic activity, landslides, tsunamis, floods, meteorite impacts and the health hazards of geologic materials. Geohazards can range from local events such as a debris slide or coastal erosion to events that threaten humankind (e.g., supervolcano eruption or meteorite impact). Earth scientists undertake research to better understand such hazards and contribute to risk reduction.

- **EARTH RESOURCES: SUSTAINING OUR SOCIETY**

Earth resources include minerals, hydrocarbons, geothermal energy, air, and water. The future well-being of society depends on sustainable use of these resources. The environmentally responsible exploitation of these resources is a challenge for geoscience research. The progress of technological development is equally bound to this premise.

- **GLOBAL CHANGE AND EVOLUTION OF LIFE: EVIDENCE FROM THE GEOLOGICAL RECORD**

Changes in the Earth's climate and of life on Earth are preserved in the rock record. Ice and dust records, terrestrial and ocean sediments, and sequences of fossil plant and animal assemblages all comprise parts of this record. Life has impacted Earth's atmosphere, oceans, and land surface. Several major extinctions have punctuated Earth's history, associated with dramatic environmental and ecosystem change. Past environmental lessons shed light on present and future challenges.

- **THE DEEP EARTH: HOW IT CONTROLS OUR ENVIRONMENT**

The Earth's surface, including our habitable environment, is a product of, and controlled by deep Earth processes. The study of this environment (ranging from changes in the Earth's magnetic field to plate tectonics) using for example, geophysical and geodynamical techniques, enhances our understanding of the working of System Earth.

- **OTHER TOPICS**

Other relevant topics in fundamental and applied geosciences will also be considered.

The IGCP encourages submission of project proposals in all aspects of the geosciences, provided they meet the requirements outlined above ("Evaluation" part of Section 2 - Operational Policy).

PROJECT PROPOSALS

IGCP project proposals may be submitted by individual scientists or by a group of scientists using the application forms available through the Secretariat office website. The IGCP Scientific Board is ready to advise project leaders, regarding the scientific quality, content, scope, viability, budget and relevance of potential project proposals (e.g., advice regarding the inclusion of other qualified scientists, bridging to other initiatives, outputs, etc.).

Assessments of proposals for new IGCP projects (and the Annual Reports of ongoing projects) are conducted once a year by selected representatives of the IGCP Scientific Board, usually during the first half of February. Assessments are based upon the criteria and objectives of IGCP (e.g. the scientific potential and feasibility of proposals, adherence to the overall goals of IGCP, qualifications of the proposers, scientific progress of the projects, significance of their results, adherence to an approved budget and so on). Projects are ranked into one of three funding levels: high, medium, or low.

The deadline for submission and receipt of new project proposals to the IGCP Secretariat is 15 October 2010.

Each project leader must include a letter of endorsement from his or her respective IGCP or IUGS National Committee. The IGCP Secretariat will promptly inform proponents of the decisions regarding individual proposals.

For details go to the website: http://portal.unesco.org/science/en/ev.php-URL_ID=6304&URL_DO=DO_TOPIC&URL_SECTION=201.html

Additional information on IGCP Projects may be downloaded (in either pdf or Word format) under the "Related links" heading from the title "IGCP Guidelines and proposal form 2009"

IGCP CONTACT:

Dr. Margarete Patzak
Programme Specialist; Deputy Secretary,
International Geoscience Programme (IGCP)
UNESCO

Career Talk 2010 : A Future with Schlumberger

27th February 2010
Geology Department, University of Malaya

A career talk entitled "A Future with Schlumberger" had been organized by the AAPG Student Chapter University of Malaya on the 27th February 2010 at the Geology Department University of Malaya. The talk started on 8.00am and ended on 2.00pm.Four speakers and a VIP from Schlumberger attended the event. The speakers were Mrs. Rashima Rashli, Miss Michelle Khor, Mr Jim Liang and Mrs. Amis Ahmad and the participated VIP was Mrs Lee Chin Na. The event was also participated by geology students from UM and UKM as well as engineering students from UM and overall 100 students had turned up for the event.

The main objective of this career talk was to expose the students to their future working environment besides enhancing their knowledge about their opportunities in the oil and gas industry. The students were also brief about the job opportunities besides the training and development provided by Schlumberger for their employee. This event too includes a resume and CV hand in session as the students will have the chance to hand in their CV and resume if they were interested in undergoing an internship programme or apply for a job in Schlumberger. An exhibition was also held in the museum to give exposure to the students about Schlumberger.

The talk started 8:45 a.m, where the Head of Department, Dr Azman Abdul Ghani officiating the ceremony with his welcoming speech. He expressed his gratitude to the organizing committees, participants and also thanks the company that sponsoring the event, Schlumberger for their generosity. His speech was followed by a speech from the President of AAPG 2009/2010, Afiqamsyar Jais.

The talk was started off by Mrs. Rashima Rashli and Miss Michelle Khor, which are the geophysicists of Western Geco. The title of their talk was Seismic Imaging and they've explained all the work involved in seismic imaging. A question and answer session was opened after they've finish their presentation. The Q&A session was then followed by a morning break for both participants and the VIPs.

After the break, the event continued with the second talk by Mr Jim Liang, the Engineer of Schlumberger. His talk focused on the well engineering design and had attracted the interest of the engineering students. A Q& A session was also opened after he ended his presentation. After the Q& A session ended, the participants assembled in the museum for the exhibition and also to hand their CV's at the Schlumberger booth. A photography session was also held for a short while. During this session, the participants received door gifts from Schlumberger while the speakers and VIP received t-shirts from the organizing committee. The exhibition and CV collection session was then followed by lunch break.

After the lunch break, the talk continued with the final session by Mrs Amis Ahmad, the human resource (HR) officer of Schlumberger. The title of her talk was Training & Development and Job Opportunities. Her talk was also followed by a Q & A session, thus wrapping the event for the day at 2 pm.

UPCOMING EVENTS

August 2-4, 2010: Volcaniclastic Rocks – Classification, Properties, Genesis and Depositional Settings, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

August 2-6, 2010: Advanced Reservoir Simulation Technologies, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

August 2-6, 2010: Advanced Seismic Stratigraphy: A Sequence – Wavelet Analysis Exploration – Exploitation Workshop, Singapore. Tel: 603 21684751; email: ap-enquiries@petroskills.com

August 5-15, 1012: 34th International Geological Congress, Brisbane, Australia. Contact: Dr. Ian Lambert, Geoscience Australia. Tel: +61 2 62499556; Fax: +61 2 62499983; email: ian.lambert@ga.gov.au;

August 27-29, 2010: AAPG 30th Annual Leadership Days, Post Oak Lodge, Tulsa, Oklahoma, USA. Contact: Richard D Fritz, email: tcurry@aapg.com

August 30-September 3, 2010: 6th Quadrennial Conference GeoSciEd VI of the International Geoscience Education Organisation (IGEO), Johannesburg, South Africa. Email: witsqeoutreach@gmail.com/slab@internode.on.net; website: //web.wits.ac.2a/newsroom/conferences/geoscied/geosciedhome:htm

September 5-10, 2010: 11th IAEG International Congress, New Zealand. Website: www.iaeg2010.com

September 12-15, 2010: AAPG International Conference and Exhibition, Calgary, Alberta, Canada. Contact: AAPG Convention Dept., P. O. Box 979, Tulsa, Oklahoma 74101-0979. Tel: 918 560 2617; Fax: 918 560 2684; email: convene@aapg.org; website: www.aapg.org/calgary

September 13-17, 2010: Carbonate Reservoirs, London, UK. Tel: 603 21684751; email: ap-enquiries@petroskills.com

September 13-17, 2010: Seismic Interpretation, Kuala Lumpur, Malaysia. Tel: 603 21684751; email: ap-enquiries@petroskills.com

September 13-17, 2010: Petroleum Systems Modelling for Exploration Risk Assessments, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

September 26-October 2, 2010: Complex Carbonate Reservoirs: The Role of Fracturing, Facies and Tectonics, Naples, Italy. Contact: education@aapg.org; Tel: 918 560 2650; website: AAPG website.

September 27-28, 2010: Development Geology. Contact: Easwaran Kanason, Petroedge, Tel: +65 67419927; email: easwaran@asiaedge.net

September 27-October 1, 2010: Petroleum Geochemistry: Tools for Effective Exploration and Development, London, UK. Tel: 603 21684751; email: ap-enquiries@petroskills.com

September 27-October 1, 2010: Petroleum Geostatistics – Integrating Data for Reservoir Modelling and Simulation, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

October 10-13, 2010: The Mena Oil and Gas Exhibition and Conference 2010. The 1st International trade show for the oil and gas serving the Mena region, Amman Exhibitions Park, Amman, Jordan. Contact: Nafees Ahmed, Orange Fairs & Events, P.O Box 111164, Dubai; Tel: 00971 4 2988144, 2987730; Fax: 00974 2987886; email: nafees@orangefairs.com; website: www.orangefairs.com

October 10-14, 2010: Integrated Petrophysics for Reservoir Characterisation, Dubai, UAE. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

October 11-15, 2010: Production Geology for Other Disciplines, Kuala Lumpur, Malaysia. Tel: 603 21684751; email: ap-enquiries@petroskills.com

October 11-15, 2010: Deep-water Turbidite Depositional Systems and Reservoirs, London, UK. Tel: 603 21684751; email: ap-enquiries@petroskills.com

October 12-14, 2010: Deepwater Southeast Asia Congress 2010, Le Meridien, Kuala Lumpur, Malaysia. Contact: molly.mei@neoventurecorp.com, website: www.neoventurecorp.com/2010/dsac

October 17-21, 2010: Carbonate and Fracture Petrophysics, Dubai, UAE. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

October 18-22, 2010: Wellsite and Operations Geology, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

October 18-22, 2010: Compressional and Transpressional Structural Styles, London, UK. Tel: 603 21684751; email: ap-enquiries@petroskills.com

October 19-22, 2010: Oils and Fats International Congress 2010 in conjunction with Oils and Fats International Asia 2010: Oils and Fats Industry:

Challenges and Innovative Solutions, Kuala Lumpur, Malaysia. Contact: OFIC 2010 Secretariat c/o MOSTA, C-3A-10, 4th Floor, Block C, Damansara Intan, 47400 Petaling Jaya, Selangor, Malaysia. Tel: 603 71182062/2064; Fax: 603 71182063; email: secretariat@mosta.org.my; website: www.mosta.org.my

October, 25-29, 2010: Structural Styles in Petroleum Exploration, Kuala Lumpur, Malaysia. Tel: 603 21684751; email: ap-enquiries@petroskills.com

October, 25-29, 2010: Application of Structural Geology in Seismic Interpretation, Kuala Lumpur, Malaysia. Contact: Tel: +65 67419927; email: info@asiaedge.net; website: www.petroedgeasia.net

October, 27-29, 2010: Pore Pressure Prediction: Special Focus – Asia Pacific, Singapore. Contact: AAPG, P.O. Bo 979, Tulsa, Okla 74101-0979, USA; email: education@aapg.org

October 27-29, 2010: Geosciences Technology Workshop (GTW): Pore Pressure and Related Issues: Special Focus – Asia Pacific, Singapore. Contact: Adrienne Pereira, Tel: 65 96536728; email: apereira@aapg.com; website: www.aapg.org

November 1-5, 2010: Production Logging and Reservoir Monitoring, Kuala Lumpur, Malaysia. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 1-5, 2010: Seismic Velocities and Depth Conversion, Kuala Lumpur, Malaysia. Tel: 603 21684751; email: ap-enquiries@petroskills.com

November 5-7, 2010: 2nd International Renewable Energy Congress (IREC), 2010, Sousse, Tunisia. Contact: irec@cmerp.net; website: www.irec.cmerp.net

November 7-11, 2010: Introduction to Open Hole Log Analysis, Dubai, UAE. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 7-11, 2010: Reservoir Engineering for Non-Reservoir Engineers, Dubai, UAE. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 8-12, 2010: Basin Analysis and Petroleum Systems, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 8-12, 2010: Special Core Analysis, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 8-12, 2010: Petroleum Geomechanics, Kuala Lumpur, Malaysia. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 15-18, 2010: 1st International Congress & Exposition of Oil Field Chemicals – 2010 (OFC-2010), Beijing, China. Contact: Ms Lucy Wang, Organizing Committee of OFC-2010, Dalian BITeomics, Inc. 26 Gaoneng St., F4 Dalian Hightech Zone, Dalian, LN 116025, China, Tel: 01186 411 84799609 – 801; Fax: 01186 411 84799629; email: lucy@bitconferences.com; website: www.bitpetrobio.com/ofc2010/

November 25-26, 2010: Deepwater Turbidites. Contact: Easwaran Kanason, Petroedge, Tel: +65 67419927; email: easwaran@asiaedge.net

November 29-December 3, 2010: Pore Pressure, Fracture Pressure and Wellbore Stability Management, Vienna, Austria. Tel: +43 3842 43053-33; Fax: +43 3842 430531; email: training@hoteng.com; website: www.hoteng.com

November 29-December 3, 2010: Clastic Exploration and Reservoir Sedimentology.Contact: Easwaran Kanason, Petroedge, Tel: +65 67419927; email: easwaran@asiaedge.net

December 7-10, 2010: The 2nd South Asian Geosciences Conference & Exhibition, India Expo Cente & Mart, Greater Noida, New Delhi. Contact: Tel: 44 207 840 2136; Fax: 44 207 840 2119; email: aridgway@oesallworld.com; website: www.allworldexhibitions.com

December 14-15, 2010: An International Symposium on Forensic Approach to Analysis of Geohazard Problems, Mumbia, India. Contact: Prof. G. L. Sivakumar Babu, Organizing Secretary, Dept. of Civil Engineering, Indian Institute of Science, Bangalore, 560012, India; Tel: 91 80 2293 3124/2360; Fax: 91 80 2360 0404; email: gls@civil.iisc.ernet.in; website: www.civil.iitb.ac.n/~igc2010

January 8-14, 2011: Colloquium of African Geology, University of Johannesburg, South Africa. Contact: Dr Hassina Mouri, Tel: 27 11 559 4706; Fax: 27 11 559 4702; Email: hmouri@uj.ac.za; website: www.cag23.co.za

GEOLOGICAL SOCIETY OF MALAYSIA PUBLICATIONS

Bulletin 2 (Dec 1968). 152 p. Bibliography and Index of the Geology of West Malaysia and Singapore by D.J. Gobbett. Price: RM5.00.

Bulletin 3 (Mar 1970). 146 p. Papers in Geomorphology and Stratigraphy (with Bibliography supplement). Edited by P.H. Stauffer. Price: RM5.00.

Bulletin 4 (Jun 1971). 100 p. Papers in Petrology, Structure and Economic Geology. Edited by P.H. Stauffer. Price: RM5.00.

Bulletin 5 (Feb 1973). 70 p. The Search for Tungsten Deposits by K.F.G. Hosking. Price: RM5.00.

Bulletin 6 (Jul 1973). 334 p. Proceedings, Regional Conference on the Geology of Southeast Asia. A Collection of papers, Kuala Lumpur, March, 1972. Edited by B.K. Tan. Price: RM5.00.

Bulletin 7 (Jun 1974). 138 p. A collection of papers on geology. Edited by B.K. Tan. Price RM5.00.

Bulletin 13 (Dec 1980). 111 p. A collection of papers on geology of Malaysia and Thailand. Edited by G.H. Teh. Price RM5.00.

Bulletin 17 (Dec 1984). 371 p. A collection of papers on geology. Edited by G.H. Teh. Price: RM10.00.

Bulletin 18 (Nov 1985) 209 p. Special issue on Petroleum Geology. Edited by G.H. Teh. & S. Paramanathan. Price: RM15.00.

Bulletins 19 (Apr 1986) & **20** (Aug 1986). GEOSEA V Proceedings Vols. 1 & 11. Fifth Regional Congress on Geology, Mineral and Energy Resources of SE Asia. Kuala Lumpur, 9-13 April 1984. Edited by G.H. Teh & S. Paramanathan. Price for both bulletins 19 & 20: Members: RM30.00: Non-members: RM60.00

Bulletin 21 (Dec 1987). 271 p. Special issue on Petroleum Geology Vol. 11. Edited by G.H. Teh. Price: RM20.00.

Bulletin 22 (Dec 1988). 272 p. Special issue on Petroleum Geology Vol. 111. Edited by G.H. Teh. Price: RM20.00.

Bulletin 23 (Aug 1989). 215 p. A collection of papers on the geology of Malaysia, Thailand and Burma. Edited by G.H. Teh. Price: RM10.00.

Bulletin 24 (Oct 1989). 199 p. A collection of papers presented at GSM Annual Geological Conference 1987 & 1988. Edited by G.H. Teh. Price: RM10.00.

Bulletin 25 (Dec 1989). 161 p. Special issue on Petroleum Geology Vol. IV. Edited by G.H. Teh. Price: RM20.00.

Bulletin 26 (Apr 1990). 223 p. A collection of papers presented at GSM Annual Geological Conference 1989 and others. Edited by G.H. Teh. Price: RM10.00.

Bulletin 27 (Nov 1990). 292 p. Special issue on Petroleum Geology Vol. V. Edited by G.H. Teh. Price: RM20.00.

Bulletin 28 (Nov 1991). 292 p. Special issue on Petroleum Geology Vol. VI. Edited by G.H. Teh. Price: RM20.00.

Bulletin 29 (Jul 1991). 255 p. A collection of papers presented at GSM Annual Geological Conference 1990 and others. Edited by G.H. Teh. Price: RM10.00

Bulletin 30 (Apr 1992). 90 p. Annotated bibliography of the geology of the South China Sea and adjacent parts of Borneo by N.S. Haile. Edited by G.H. Teh. Price: RM10.00.

Bulletin 31 (Jul 1992). 176 p. A collection of papers presented at GSM Annual Geological Conference 1991 and others. Edited by G.H. Teh. Price: RM10.00.

Bulletin 32 (Nov 1992). 283 p. Special issue on Petroleum Geology Vol. VII. Edited by G.H. Teh. Price: RM30.00.

Bulletin 33 (Nov 1993). 419 p. Proceedings Symposium on Tectonic Framework and Energy Resources of the Western Margin of the Pacific Basin. Edited by G.H. Teh. Price: RM40.00.

Bulletin 34 (Dec 1993). 181 p. Bibliography and Index – Publications of the Geological Society of Malaysia 1967-1993. Compiled by T.F. Ng. Edited by G.H. Teh. Price: RM20.00.

Bulletin 36 (Dec 1994). 186 p. Special issue on Petroleum Geology Vol. VIII. Edited by G.H. Teh. Price: RM50.00.

Bulletin 37 (Jul 1995). 506 p. Proceedings AAPG-GSM International Conference 1994. Southeast Asian Basins: Oil and Gas for the 21st Century. Edited by G.H. Teh. Price: RM60.00.

Bulletin 38 (Dec 1995). 190 p. A collection of papers presented at GSM Annual Geological Conference 1994 and others. Edited by G.H. Teh. Price: RM30.00.

Bulletin 40 (Jul 1997). 247 p. A collection of papers presented at GSM Annual Geological Conference 1996 and others. Edited by G.H. Teh. Price: RM30.00.

Bulletin 42 (Dec 1998). 268 p. Papers from Petroleum Geology Conference 1997, Seminar on Tertiary Basins of Peninsular Malaysia and others. Edited by G.H. Teh. Price: RM50.00.

Bulletin 43 (Dec 1999). 698 p. Papers from GEOSEA '98 (Ninth Regional Congress on Geology, Mineral and Energy Resources of Southeast Asia). Edited by G.H. Teh. Price: RM70.00.

Bulletin 44 (July 2000). 178 p. A collection of papers from Annual Geological Conference 1999. Western Belt & Paleozoic of Peninsular Malaysia Seminar 1999 & others. Edited by G.H. Teh. Price: RM30.00

Bulletin 45 (May 2002). 375 p. Annual Geological Conference 2002. Conference Issue. Edited by G.H.Teh, Ismail Yusoff, Azman Abdul Ghani & T.F. Ng. Price: RM50.00.

Bulletin 47 (Dec 2003). 179 p. Petroleum Ceology Conference & Exhibition 2002. Edited by G.H. Teh. Price: RM30.00.

Bulletin 49 (April 2006). 167 p. Collection of Geological Papers. Edited by K.K. Liew, Nur Iskandar Taib & T.F. Ng. Price: RM30.00.

Bulletin 50 (May 2007). 160 p. Bibliography and Index of GSM Publications 1994 – 2004. Compiled by Robert B. Tate. Price: RM30.00

Bulletin 51 (2005). 199 p. Annual Geological Conference 2005 Conference Issue. Edited by Nur Iskandar Taib. Price: RM30.00

Bulletin 52 (June 2006). 135 p. Collection of Geological Papers. Edited by Nur Iskandar Taib. Price: RM30.00.

Bulletin 53 (June 2007). 128 p. Collection of Geological Papers. Edited by T.F. Ng, Nur Iskandar Taib & Joy J. Pereira. Price: RM30.00.

Bulletin 54 (November 2008). 169 p. Collection of Geological Papers. Edited by T.F. Ng, Nur Iskandar Taib & Samsudin Hj Taib. Price: RM30.00.

Bulletin 55 (November 2009). 100 p. Collection of Geological Papers. Edited by T.F. Ng & Y.L. Lau. 100 p. Price: RM20.00.

Abstracts of papers (1972). Regional Conference on the Geology of Southeast Asia. Kuala Lumpur, 1972. 64 p. 8 figs. 3 tables, many extended abstracts. Edited by N.S. Haile. Price: RM2.00.

Warta Geologi (Newsletter of the Geological Society of Malaysia). Price: RM5.00 per bimonthly issue from July 1966.

Stratigraphic Lexicon of Malaysia (2004). 162 p. By Lee Chai Peng, Mohd. Shafeea Leman, Kamaludin Hassan, Bahari Md. Nasib & Roshidah Karim. Price: RM30.00.

Geological Evolution of Southeast Asia (2007) (Second Edition) 433 p. by C. S. Hutchison. Price: RM100.00; Student :RM50.00.

Common Rocks of Malaysia (Colour Poster). Price: Member: RM8.00; Non-Member: RM10.00; Student: RM7.00.

Proceedings Annual Geological Conference 2000. 435 p. Edited by G.H. Teh, Joy J. Pereira and T.F. Ng. Price: RM60.00.

Proceedings Annual Geological Conference 2001. 320 p. Edited by G.H. Teh, Mohd. Shafeea Leman and T.F. Ng. Price: RM50.00.

Geology of Borneo Island (2001) (CD, Map (2 sheets) and explanatory notes. Compiled by Robert B. Tate. Price: RM60.00.

Geology of Peninsular Malaysia (2009) 479 p. Hardcover. Edited by C.S. Hutchison & D.N.K. Tan. Inclusive of Geological Map of Peninsular Malaysia. Price: Member RM150.00; Student Member RM70.00; Non-Member RM200.00

Geological Map of Peninsular Malaysia (2008). Scale 1:1 000 000. Price: RM50.00; Student: RM20.00.

All prices quoted are not inclusive of postage. Please write in for details on postage. Allow 8-10 weeks for delivery. For orders, please write to the Society and you will be invoiced. Cheques, money orders and bank drafs must accompany all orders.

Orders should be addressed to: Geological Society of Malaysia,
c/o Department of Geology,University of Malaya,50603 Kuala Lumpur, MALAYSIA
Tel: 603-79577036, Fax: 603-79563900
E-mail: geologicalsociety@gmail.com

Geological Society of Malaysia Publications

General Policy

Papers should be as concise as possible. They may include original results of basic, applied and policy research of national or international significance, current reviews, or discussions on techniques, research programs, organisations, information, or national and international policies in geoscience.

Submission of Papers

Only papers that have not been published elsewhere will be considered for publication. Authors must agree not to publish elsewhere a paper submitted and accepted. All papers will be subjected to review by two or more reviewers. Authors wishing to include published and unmodified figures or text passages are required to obtain permission from the copyright owner(s). Authors of English papers are strongly urged to have their manuscript edited for language before submission by a person whose first language is English.

The Editor reserves the right to reject all or any part of the paper submitted. The Geological Society of Malaysia assumes no responsibility for statements made by authors.

Three (3) original copies of the paper should be submitted to:

The Editor,
Geological Society of Malaysia
c/o Department of Geology
University of Malaya
50603 Kuala Lumpur,
Malaysia
Tel: (603) 7957 7036
Fax: (603) 7956 3900
Email: geologicalsociety@gmail.com

Manuscript

The paper can be written in Bahasa Malaysia (Malay) or English. For English papers, use either British or American spelling but not a combination of both. The paper should be checked thoroughly for spelling and grammar. The manuscript must be printed at 1.5 spacing in a single column on one side of A4 paper. All pages should be numbered. Length of paper should be between 4,000 to 6,000 words (8 to 12 pages), excluding tables and illustrations. Metric units should be used and all non-standard symbols, abbreviations and acronyms must be defined.

Title

Title must be informative and reflects the content of the paper. Title in Malay should include an English translation. It should be concise (less than 20 words). Avoid using abbreviation in the title.

Author's Address

Addresses of all authors must be provided. The addresses should be sufficient for correspondence. Please include email address, telephone and fax of the corresponding author.

Abstract

Abstract in both Malay and English, each in one paragraph and should not exceed 300 words. It should clearly identify the subject matter, results obtained, interpretations discussed and conclusions reached.

Keywords

Please include 3 to 8 keywords that best describe the content of the paper.

References

In the text, references should be cited by author and year and listed chronologically (e.g. Smith, 1964; Jones *et al*., 1998; Smith & Tan, 2000). For both Malay and English paper, all references must be listed in English. Title of non-English articles should be translated to English.

The list of references should only include articles cited in the text. The list should be arranged in alphabetical order. Please ensure that the reference list is complete and the bibliographical details are accurate. The references should be in the following manner:

Journal articles:

Suntharalingam, T., 1968. Upper Palaeozoic stratigraphy of the area west of Kampar, Perak. Geol. Soc. Malaysia Bull., 1, 1-15.

Books:

Hutchison, C.S., 1989. Geological Evolution of South-east Asia. Clarendon Press, Oxford. 368 p.

Chapter of books and Symposium volumes:

Hosking, K.F.G., 1973. Primary mineral deposits. In: Gobbett, D.J. and Hutchison, C.S. (Eds.), Geology of the Malay Peninsular (West Malaysia and Singapore). Wiley-Interscience, New York, 335-390.

Article in Malay:

Lim, C.H. & Mohd. Shafeea Leman, 1994. The occurrence of Lambir Formation in Ulu Bok Syncline, North Sarawak. Geol. Soc. Malaysia Bull., 35:1-5. (in Malay with English abstract)

Tables

All tables should be cited in the text and numbered consecutively. Tables should have a title and a legend explaining any abbreviation or symbol used. Each table must be printed on a separate piece of paper. Do not insert the tables within the text. Data in tables should be aligned using tab stops rather than spaces. Avoid excessive tabulation of data.

Illustrations

Please make sure that all illustrations are useful, necessary and of good quality. A maximum of ten (10) illustrations (photographs, graphs and diagrams) are allowed and these should be cited in the text and numbered consecutively as Figures. The papers are usually published in black-and-white but it may sometimes be possible to include colour figures at the author's expense. The scales for maps and photomicrographs should be drawn on the figure and not given as a magnification. Originals should not be greater than A4 size and annotations should be capable of being reduced down to 50 percent. The caption should be listed on a separate piece of paper. Do not insert the illustration within the text.

Submission of Electronic Files

Authors are required to submit electronic files together with three hardcopies of their papers. Submission should be made using CD-ROM. The CD-ROM should be accompanied with a listing of all files and the software (name and version) used. The file names should reflect the content of the files (e.g. Ali_Fig1.tif). Please make sure that the files and the hardcopies are the same.

Preferred Software

Text: Microsoft Word. Please save in two versions, Word (.doc) and Rich Text Format (.rtf). Do not insert tables and illustration within the text.

Tables: Microsoft Word or Microsoft Excel. Please submit as separate files.

Illustrations – Vector Graphics: Adobe Illustrator (preferred), CorelDraw and Freehand. Final line thickness should be at least 0.5 point or 0.17 mm. For other software, please submit one copy in the native file format and export one copy as a PDF file with all fonts embedded and one copy as a high resolution TIFF or JPEG image.

Photographs or bitmap (raster) images: Adobe Photoshop. Please save as TIFF or PSD files. Save/scan line art at 600 to 1200 dpi and greyscale figures at 300 to 600 dpi. High resolution JPEG, TIFF or GIF files from other sources are also acceptable. The resolution must be high enough for printing at 300 dpi.

Reprints

Twenty five copies of each article published are supplied free of charge. Additional reprints are available at cost price provided that orders are placed prior to publication. Authors will also received a softcopy of the article published in .pdf format.

PP2509/07/2011(028111) ISSN 0126-5539

WARTA GEOLOGI PERSATUAN GEOLOGI MALAYSIA

Newsletter of the Geological Society of Malaysia
Jilid 36, No. 1 • Volume 36, No. 1 • January–March 2010

KANDUNGAN (CONTENTS)

CATATAN GEOLOGI (Geological Notes)

LETTER TO EDITOR

PERTEMUAN PERSATUAN (Meetings of the Society)

BERITA–BERITA PERSATUAN (News of the Society)

BERITA LAIN (Other News)

Published by the GEOLOGICAL SOCIETY OF MALAYSIA
Department of Geology, University of Malaya, 50603 Kuala Lumpur, MALAYSIA
Tel: 603-7957 7036 Fax: 603-7956 3900 E-mail: geologicalsociety@gmail.com

Printed by Art Printing Works Sdn. Bhd.
29, Jalan Riong, 59100 Kuala Lumpur, MALAYSIA